PACKAGING CATALOG

1934 • EDITION



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FOREWORD

IN this, the sixth annual edition of the PACKAGING CATALOG, all of the text material included in former issues has been revised and supplemented, several new chapters added and the number of illustrations considerably increased. The value of such reproductions will be evident in only a casual glance at the book, for in each case where they have been used the examples selected are those which enable easy identification with each subject treated and provide valuable supplemental information.

As in previous editions, we would again point out that for proper usage of the PACKAGING CATALOG it is essential that the reader consult both editorial and advertising pages with reference to the subjects on which information is desired. The Table of Contents will be found to list each of the various subjects together with the reference to and numbers of those advertising pages that carry specific information relating to a given subject. The buyers' directory in furnishing names of manufacturers of equipment, materials and service also supplies additional sources from which supplemental data on various subjects may be obtained. Advertisers as well as non-advertisers are listed.

To those already familiar with packages and packaging practice the 1934 PACKAGING CATALOG will prove an invaluable reference work; to the initiates in the use of packages the book will serve as a dependable guide in determining the steps that should be taken in the selection of packages and packaging equipment. To the latter especially, a complete reading of the book is recommended.

A complete list of the contributors—authors as well as those who furnished correlative information—together with their affiliations is included elsewhere in the book. Each is regarded as an authority on the subject, and the compilation combines, we believe, the most complete treatise on the subject of packaging which is available. To those who have so generously contributed of their time and experience our sincere thanks are extended. And this appreciation, we feel certain, is likewise shared by readers and users of the 1934 PACKAGING CATALOG.

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THE YEAR'S PROGRESS IN PACKAGE PRIVILEGE

by Walden Fawcett

IT has been a notable year in packaging history. No less in the formation, by and large, of package "character" than in achievements for package "security." The first is a tribute to the more general recognition in business circles of the practical, merchandising value of package individuality—distinctive packaging, if you prefer. The second is a result of the quickened consciousness with respect to the safety of original ideas in packaging. Package "insurance" looms larger in the picture. Packages must be fortified against infringement. Package designs must be entrenched against substitution. These new responsibilities, these deepened obligations, have, this year as never before, colored the whole course of action in the ever-widening packaging circles. 1934 has a flying start in the march toward complete capitalization of the package and full vindication of packagers' privilege.

From the standpoint of current news interest, the most dramatic element in the 1933 panorama has been contributed by the advent of the National Recovery Administration and its cooperating twin, the Agricultural Adjustment Administration. The effort to mobilize industry and agriculture in behalf of balanced prosperity has been, of itself, reflected in package demand. But, for the long pull, the significance to the cause of packaging which is to be found in the great experiment rests in the creation of a new concept of self-government in industry. Thanks to the New Deal, a new type of trade association, of larger stature, has emerged. And the self-policing of industry has grown to a new dimension.

After all, though, from the packaging standpoint, the outstanding contribution has been the projection of the institution known as the Code of Fair Competition. Because it is via the code that the new spirit of the honor system in business undertakes to deal with the controversial issues of packaging—the pillars of packaging policy which have, heretofore, been obliged to wait for definition upon the slow and uncertain processes of national and state legislation. A year in the atmosphere of NRA has given authoritative form, if not compulsion, to the ethics of packaging.

With scores of trade associations and group organizations, new and old, working on platforms of trade practices, it is not surprising that this fruitful period has brought forth a muster of packaging prohibitions which afford the nucleus for what will become, ultimately, the black list of the industry which is a participant in and contributor to all other industries. With no space to particularize, here follows the catalog of the massed taboos of packaging as they appear evident.

Plank No. 1 in the Coalition Platform of Packaging evolved by the package-using industries, calls for repression of freak and non-standard packages. Package standardization in each commodity line is the goal and the prohibitions run against undersize and over-size containers, odd fractional units, etc. Plank No. 2 dovetails into No. 1. It denounces deceptive packages and slack-filled containers. Plank No. 3, which has, thus far, acceptance by fewer trade groups than the above, prohibits selling in bulk for resale unless such resale is made in the original package.

Several planks, beginning with what we may list as No. 4, deal, from one angle or another, with package piracy, confusion of package identities, etc. Specifically, the fourth code command calls for avoidance of style imitation—demands mutual respect for creative package designs, pre-empted color plans and established and trade marks. Parallel to that, in a sense, is Plank 5 which broadly outlaws false branding or marking of packages, with the effect of misleading purchasers. Plank 6 discredits "free deals" and declares against prize and premium schemes that smack of lotteries, but leaves the field open unrestrictedly to premiumized packages—that is to say, packages which act as premiums for the contents.

Several of the code-expressed principles, while not designedly aimed at packaging, are liable to contact packaging interests. A case in point is the plank which would call a halt on all methods of compelling assortment buying or requiring the purchase of several or a group of products at one time. It was not the intention to hit combination packages. Price-fixing presupposes price-marked packages. Limitation upon "advertising allowances" to distributors may communicate its influence to the entire strategy of display. Declared prejudice against "loss leaders" is a jolt to fighting brands on the one hand and to private brands on the other hand.

Increase, this past year, in the volume of broadcast advertising, with its lack (pending television) of visual facilities, has laid fresh demands upon packaging. The insistent call, under promotion by radio, is for an easily describable, readily recognizable package. One means to the end is seen in the heavier bearing down on the use of bold primary colors in package design. Or simple color schemes readily carried in mind. With chain hook-ups pyramiding the cost of radio time, the demand of the national advertiser on the air is for packages

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that may be vividly pictured to the lay mind in few and simple words.

A. D. 1933 may be fixed as the date from which the forces of packaging must reckon with a modified aspect of packaging for more elastic service in consumption. Familiar for years past has been the guest package, designedly fashioned to take its place in the most fastidious, non-commercial surroundings. This last round of the calendar has brought into full stride another version of the same basic idea, viz., subportioning, or resetting by transfer to a "fillable" or "refill" receptacle supplied by the packager.

The calendar year 1933 brought no national legislation dealing specifically with packages and packaging. Bills to reorganize the U. S. Patent system, to revise and consolidate the trade mark statutes, and to institute a system of Design Copyright or Design Registration, continue to have place on the waiting list of Congress. Hope of early action has been dimmed by the situation existing in the U. S. House of Representatives Committee on Patents which must submit a favorable report to the main body to secure action on any pending bill. This committee, or rather its chairman, has held the entire legislative program in abeyance. The Senate Committee on Patents, by tradition, awaits the initiative of the House.

Curtailment of Government expenses, this past year, has taken toll of packaging research. Because the sharpest reduction has been in the very quarter where packaging is most intimately contacted, viz., the U. S. Bureau of Foreign and Domestic Commerce. The drastic slash of appropriations has been felt in the Packaging Section of the Transportation Division and in the Division of Domestic Commerce where the merchandising research staff had brought to completion what it had been hoped might be but the first of a series of studies of the "merchandising requirements" of packages in various lines of trade.

For packaging industries, an outstanding consequence of the contraction of Government activities in 1933 is to be found in the transfer from the national Bureau of Standards of the agencies which have had to do with package standardization. By the shift, the American Standards Association—a federation of 37 national technical societies and trade associations—with headquarters at 29 West 39th St., New York, supplants Uncle Sam as a coordinator of unstandardized packagers. The units that are moved to the new auspices, from the Bureau of Standards, include the Division of Trade Standards, Division of Specifications and Division of Simplified Practice. The last has been responsible for such practical assists to packaging as the simplification of coffee cartons.

The last round of the calendar has to its credit the return of beer and the progress to a new lease of life for liquor, both developments entailing sequels in packaging. The possibilities of package reallignment in the case of beer were early signaled by the introduction of fibre containers as substitutes for the familiar beer bottles. A foretaste of fresh problems of package identification and protection in the liquor and wine trade has been afforded by the raids made, in the State of Kentucky, upon some of the oldest and most valuable distillery brands.

In a constructive sense, packagedom has made no greater gain in the period under review than that obtained by the first, systematic organized resistance to the growing evil of package bootlegging. With the sounding of the death knell of rum running, erstwhile bootleggers (fully armed with the necessary engraving and printing facilities) have been turning their talents to the counterfeiting of proprietary or specialty labels. And, incidentally, to the dissemination of faked products under the forged labels, wrappers or package dress. The initiative in the current fight against package violation is fortunately in strong hands, the American Drug Manufacturers Association, with headquarters in the Albee Building, Washington, D. C. Slated for 1934, under the leadership of this body, is a drive in Congress to secure enactment of an anti-counterfeit bill sponsored by Senator Copeland. Senate Bill S. 5149 is applicable only to drug products. If enacted and successful it might be amended to shelter other classes of commodities and containers copied by bootleggers.

TRENDS OF THE YEAR

An annual inventory must take at least fleeting account of the contemporary trends, which, although imperfectly defined in some instances, bid fair to ultimately influence the course and pace of package progress. On this basis we have to take cognizance of latter day manifestations as follows: (a) the lapse in popularity of 5-cent and 10-cent packages, that are in competition with standard sizes; (b) the noteworthy revival of direct-selling or house-to-house canvassing; (c) the turn to display containers because of the ill-favor which has come upon "free deals," allowances for "window space," etc.; (d) the latest additions to package mediums as exemplified by the cellulose-base transparent containers and transparent-topped tin cans, etc.; (e) the effect of recent commodity price movements on private branding or proxy packaging; and (f) the double boost to "combination" packaging, due to the U. S. Court decision holding package combinations to be unbreakable by retailers, and to the agitation against premiums—the latter being a form of propaganda which has not extended to the tie-up of a staple package to a service-adjunct or accessory offered in the "combination" at bare cost. Of the trends to be expected in 1934 some will unquestionably flow from the expected revision of U. S. postal policies—especially if this promised program embraces a revision of parcel post rates.

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DIRECTORY OF PACKAGE-TESTING AND ADVISORY INSTITUTIONS

by Waldon Fawcett

THIS muster represents an assembly for reference purposes of the agencies—public, semi-public and private—that are in position to contribute, directly or indirectly, to a knowledge of packages and packaging. In part, the inspiration for this roll call has been found in the disappointment expressed, now and again, by packagers over the comparatively small number of package-proving establishments equipped for miscellaneous investigation and experiment. From the implied reproach has sprung the desire to demonstrate that packagedom has unsuspected storehouses of technical data and expert opinion in the institutions which, if not devoted to appraisal of packages in their entirety, render no less valuable "intelligence service" on package materials, package designs, etc.

American Bottlers of Carbonated Beverages, 726 Bond Bldg., Washington, D. C.: Maintains, incident to its service activities, a trade mark bureau which comes within hail of packaging through efforts to stabilize notations on lithographed crowns, etc.

American Management Association, 20 Vesey St., New York: Research on packaging carried on incident to the planning for the annual Packaging Conference, Clinic and Exposition.

American Society for Testing Materials, 1315 Spruce St., Philadelphia, Pa.: Limited in its service to the packaging industries but makes some contact via its work on the standardization of specifications and methods of tests for miscellaneous materials such as papers, etc.

American Spice Trade Association, 82 Wall St., New York City: Has assembled considerable data on packaging in the spice field incident to simplification or standardization of spice containers.

American Standards Association, 29 West 39th St., New York City: A federation of 37 national technical societies and trade associations designed to serve as a clearing house through which the standardization work of technical and industrial bodies is correlated. Devoted, prior to 1933, to national industrial standards, the American Standards Association, in that year, came into the packaging picture in a large dimension through taking over, from the National Bureau of Standards, the organization units known as the Division of Trade Standards, the Division of Specifications and the Division of Simplified Practice, all of which are concerned both directly and indirectly with packaging materials and packaging practice.

American Veneer Package Association, Washington Loan & Trust Bldg., Washington, D. C.: Scope of research indicated by title.

American Warehousemen's Association, 222 West Adams St., Chicago, Ill.: A resource for the answering of technical questions bearing upon package design and package construction as influenced by considerations of storage in, and distribution from, public warehouses. Also for details on the procedure of repacking or repackaging as carried on in local or regional warehouses.

American Waxed Paper Association, 342 Madison Ave., New York City: This organization claims that its standard requirements for packaging have resulted in the elimination of many needless sizes and that the organization has further contributed to the cause of better packaging by establishing standards for quality, weight, etc.

Associated Cooperage Industries of America, 2008 Railway Exchange Bldg., St. Louis, Mo.: Studies of the properties, construction and uses of tight and slack wooden barrels and kegs.

Associated Knit Underwear Manufacturers of America, Mann Building, Utica, N. Y.: Has on file data accumulated preliminary to the adoption of five standard sizes of boxes for the underwear line.

Bureau of Business Research, School of Business Administration, University of Pittsburgh, Pittsburgh, Pa.: Has conducted packaging studies, notably "The Investigation of Consumer Attitude Toward Meat Packages," carried out several years since with the cooperation of the *National Provisioner.*

Bureau of Fisheries, Department of Commerce, Washington, D. C.: A national bureau concerned with the maintenance and extension of the commercial fisheries of the United States and Alaska. Some years ago the bureau gathered, at first hand, valuable information on the containers and packages used in shipping shucked oysters. During the past year the bureau has established a refrigeration laboratory to facilitate study of the improvements in the methods of handling fresh fish. Technologists of the Division of Fishery Industries are devoting much attention to the packaging of fresh, frozen and smoked products and will be in a position to give authoritative advice to packagers.

Census of Manufactures, and Census of Distribution, The Bureau of the Census, Department of Commerce, Washington, D. C.: Outstanding sources for authoritative statistical information covering the production and distribution of all classes of packages and packaging materials.

Container Testing Laboratories, Inc., 300 Fourth Ave., New York City: An organization of consulting engineers specializing in the design, construction, packing, testing and transportation problems of containers for all commodities.

The Cotton-Textile Institute, Inc., 320 Broadway, New York City: With the object of extending the uses of cotton, has carried on extensive experiments and tests on new uses for cotton bags and other cotton containers.

W. V. Cruess, Associate Professor of Fruit Products, 336 Hilgard Hall, College of Agriculture, University of California, Berkeley, Cal., has gathered first-hand valuable information on the packaging of fruit products, etc.

H. C. Diehl, U. S. Agricultural Experiment Station, Wenatchee, Wash.: Specialist in charge of federal investigations of the packaging of "frozen pack" of berries and other fruits, vegetables, etc.

Federal Trade Commission, Washington, D. C.: Creator of the institution known as the Trade Practice Conference which is employed, on occasion, to bring about concert of action in an industry covering packaging practices. Data available on specific projects, for example, the recommendation to the spice trade of standard containers for retail units.

Forest Products Laboratory, Madison, Wis.: Operated by the Forest Service, U. S. Department of Agriculture, in cooperation with the University of Wisconsin. It has a division devoted to containers and has carried on, over a period of years, much valuable research on containers. The information obtainable at this source is not confined, as many business men have assumed, to wooden packages.

Freight Container Bureau, American Railway Association, 30 Vesey St., New York City: Has outlined, in a large number of publications, efficient and economical methods of packing and shipping various commodities. Concerns itself with crates and crating rather than with internal packing and packages but has also carried on some research work on inside containers, as, for instance, the study of cans for liquids, semi-liquids and pastes.

Glass Container Association of America, 19 West 44th St., New York City: Carries on a continuing program of research on the various classes of glass packages such as preserve glasses, drug and pharmaceutical bottles, cheese jars, etc.

Institute of American Meat Packers, 506 South Wabash Ave., Chicago, Ill.: Incident to the work of standardizing packs, the Institute has carried on a considerable amount of research on packages as, for example, lard cans, sausage and sliced bacon cartons, wrappers for smoked meats, and glass jars for vinegar-pickled products. Merchandising investigations conducted to ascertain necessity for changes in the size and weight of packs.

League for the Suppression of Design Piracy, Graybar Building, New York City: Includes among its objectives protection of package designs and has in hand evidence of evils of design invasion.

Library of Congress, Washington, D. C.: Has a fairly complete collection of books in English and foreign languages on packaging in all its branches, and bound volumes of periodicals devoted to the subject. The one best source of out-of-print publications. Volumes may not be withdrawn from the Library but may be consulted in the reading rooms and photostat copies obtained when circumstances warrant. U. S. Copyright Office, a branch of the Library, registers art subjects such as are employed in gift packaging.

Merchandising Research Division, Bureau of Foreign and Domestic Commerce, Washington, D. C.: The Costs and Operations Analysis Section has inaugurated, incident to general surveys of wholesale and retail distribution, a series of studies of packages and packaging practice. The current example is the study of proprietary packages, incident to the National Drug Store Survey.

Metropolitan Life Insurance Co., Policyholders' Service Bureau, 1 Madison Ave., New York: "The Use of Style and Design in Industry," and other reports touching packaging practices are published by the Division of Marketing and Distribution.

Modern Packaging, 425 Fourth Ave., New York City: Maintains a permanent exhibit of packages and packaging materials, together with photographs and catalogs of packing equipment, general and specific packaging information, etc.

National Alliance of Art and Industry, Inc., 30 Rockefeller Plaza, New York City: Maintains a library of design information and a laboratory for design experimentation and conducts a vocational guidance and placement service (maintained by the Art Alliance of America) for artists and designers.

National Association of Waste Material Dealers, Inc., Times Bldg., New York City: The salvage and reclamation division of this organization is a listening post for information on the salvage and reclamation of containers.

National Bureau of Standards, Washington, D. C.: The principal Federal scientific laboratory, which serves the cause of progress in industry. Has the dual function of a research agency and official testing station for all branches of the national Government in examination of samples and verification of Departmental purchases. Scrutiny of packages, as such, is confined principally to the package standardization projects of the Division of Simplified Practice. Practical aid for packagers is contributed by numerous specialized studies of packaging materials, notably papers, inks, adhesives, etc. In 1933 major portion of the work on simplification and commercial standards was transferred to American Standards Association.

National Canners Association, 1739 H St., N. W., Washington, D. C.: Packaging is a major subject in the permanent program of this organization.

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Following the adoption of 27 standard sizes of cans, merchandising studies are in progress to ascertain the need of modifications or revisions of the package schedule.

National Cigar Box Manufacturers Association, 236 Chestnut St., Philadelphia, Pa.: Channel for informative contact with a highly specialized section of the container industries. Also sponsors the Wooden Cigar Box Boosters Club.

National Committee on Wood Utilization, Washington, D. C.: Has assembled and published data and suggestions on the re-use of wooden packages and the use of short-length lumber for package construction.

National Confectioners' Association, 111 W. Washington Street, Chicago, Ill.: Maintains a trade mark "search" service and has carried on research work on special aspects of packaging.

National Paint, Oil and Varnish Association, 2201 New York Avenue, N. W., Washington, D. C.: Maintains a trade mark bureau and committee on trade marks which make indirect contact with packaging activities in the effort to prevent duplication of dress of goods within the industry.

National Paper Box Manufacturers Association, 802 Liberty Trust Building, Philadelphia, Pa.: Clearing house for information on set-up paper boxes.

National Paper Trade Association of the United States, 420 Lexington Ave., New York City: Contacts the packaging field via its research work on gummed tape, tissue papers, paper bags, etc.

New England Council, Statler Bldg., Boston, Mass.: Carries on a consistent campaign to encourage the packaging of farm products under the "New England Quality Label."

New York University, Washington Sq., New York City: Has conducted, in its Department of Marketing, comparative tests to ascertain consumer preferences for package design and package color. A typical test was that to measure the reaction of a representative cross-section of the public to several tentative designs for a new package for Wheatsworth Whole Wheat Crackers.

Package Manufacturers: All the leading manufacturers of packages are ready to place their facilities at the disposal of customers or prospective customers and to give the benefit of their experience in advice on package selection. A number of the package producers have service arrangements whereby their engineers, when made acquainted with the special requirements of a particular packer, will submit without obligation explicit suggestions for suitable packages or full-scale models of original package units.

Package Standardization Specialists: The U. S. Department of Agriculture has, in its Bureau of Agricultural Economics, specialists who are the best sources of information on all the phases of package standardization which embrace baskets, crates, boxes, barrels, sacks and other packages for fruits and vegetables.

Packaging Machinery Manufacturers: All the leading manufacturers of packaging and wrapping machinery, mechanical labelers, etc., are prepared and willing to give expert advice on questions of package policy which are dictated or influenced by considerations of weighing, sealing, handling, etc. Naturally, each individual machinery builder is best qualified to give advice on package designs and package construction that has in contemplation the employment of his particular machinery.

Packaging Section, Transportation and Communication Division of the Bureau of Foreign and Domestic Commerce, Washington, D. C.: The Commerce Department's agency for packing research and dissemination of information. Supposedly concerned primarily with packing (especially for overseas shipment) as distinguished from packaging, but nevertheless a valuable source of data for packagers. Most important contribution to date is a series (as yet uncompleted) of bulletins on the various types of packages entering domestic commerce. Bulletins are available on fibre containers, wooden boxes, wooden crates, plywood boxes, wire-bound boxes, nailed wooden crates, parcel post packages, etc.

Paper Bag Manufacturers Institute, 11 West 42nd St., New York City: Information bureau on the paper bag medium in general and particularly its later modifications such as the "window" bag, etc.

Paperboard Industries Association, 608 South Dearborn St., Chicago, Ill.: Program of work includes research and market studies in the field of packaging and container manufacture.

Plywood Box Manufacturers Association of America, 260 Tremont St., Boston, Mass.: Directory service to a section of the industry.

Railway Express Agency, Inc., New York City: Gives counsel to shippers or other interested parties on "good packing," "good wrapping" and "good marking." Specific rules or recommendations for eleven different classes of commodities.

Standard Container Manufacturers, Realty Bldg., Jacksonville, Fla.: Seeks to promote uniform customs, usages and standards for all fruit and vegetable packages, and carries on research in economies in manufacture.

Steel Barrel Manufacturers Institute, Keith Bldg., Cleveland, Ohio: Research and tests necessary for recommendations for steel barrel drums, etc.

Superintendent of Documents, U. S. Government Printing Office, Washington, D. C.: "Uncle Sam's mail order book store." Has for sale, at prices approximating cost of production, the various Government publications on packages and packaging, including the complete records of Congressional hearings on proposed packaging legislation.

Traffic, Receiving and Marking Group of the National Retail Dry Goods Association, 225 West 34th

Street, New York City: Has assembled data on store packaging, etc. Has published reports on unit packing, shipping containers and store packing.

Wirebound Box Manufacturers Association, 111 *West Washington St., Chicago, Ill.:* Tests wirebound boxes and designs new packages. Prepares specifications for styles of wooden wirewound boxes.

United Typothetae of America, 1200 *Tower Bldg., Washington, D. C.:* Deals with packages, incident to its research in the field of merchandise distribution and market analysis. Concerned especially with the various aspects of package printing.

U. S. Food and Drug Administration, Department of Agriculture, Washington, D. C.: The official agency for the enforcement of the Federal Food and Drug Act. Stands ready, in the position of counsellor, to advise packagers of food products on what constitutes "misbranding" and to indicate what policies in package design will absolve packagers from any suspicion of "slack" packaging or "short" packaging. Illustrative of the practical research work of this regulatory institution is the comparative study of tea packages, undertaken to ascertain the comparative advantages and disadvantages of the different species of household packages for tea. This administration has, in its food control laboratory, a mineral water and beverage unit that is a source of information on the subject indicated.

United States Patent Office, Washington, D. C.: Supplies, on order by number, at a nominal price, printed copies of designated design patents covering packages, also mechanical patents covering package features with working arts, such as closures, etc. Accepts subscriptions for the delivery by mail of the weekly issues of the *Patent Office Gazette,* the official publication, which lists, illustrates and indexes the patents issued and trade marks registered, with the names of applicants. The *Gazette* likewise enumerates by title the package labels on which copyrights have been obtained at U. S. Patent Office.

The United States Printing & Lithograph Co., Cincinnati, Ohio.: This house has a trade mark bureau which affords information and suggestion on the subject of packaging. In 1931, the company did important research on private brand packaging.

Wolf & Company, Department of Business Analysis, 1616 *Walnut St., Philadelphia, Pa.:* Has, of date of the past few years, a number of surveys and studies of packaging and kindred subjects, such as the "Analysis of the Set-Up Paper Box Manufacturing Industry," conducted for the National Paper Box Manufacturers Association.

Wooden Box Bureau of the National Association of Wooden Box Manufacturers and National Lumber Manufacturers Association, Conway Building, Chicago, Ill.: Promotional work has included research on the development of small nailed wooden boxes for unit packages.

FACTORS GOVERNING PACKAGE DESIGN

by Roy Sheldon

THE design of a package is primarily determined by the life that package will lead. It leads one life at the factory, from its inception until it is a finished production job. It leads another life in the store, and it has to get there in immaculate condition. Its last life is in the home, where it must be opened and disposed of. Each of these stages is equally important, and each definitely affects the design. They must be considered and carefully thought out before a specific design is decided on.

The next step is to formulate, as nearly as possible, the particular job that the package must do. It must contain the merchandise and protect it. It must, in most cases, display that merchandise and attract attention to it. Finally, it must sell that merchandise—sell it in the store, from shelf, counter or window, and sell it in the home—by explaining its uses and giving directions for its proper application.

The package is not an advertising device alone. In fact, where there is no advertising, it has a greater job to do than when it is supported by radio, page, or booklet. The package is the actual thing bought, paid for, and carried home. It will be made in quantity and the design should have a life of two years or, in most cases, considerably longer. For these perfectly obvious reasons the designing of a package, which in the present state of American business is a comparatively disorganized activity in a comparatively new business strategy, absolutely justifies a considerable investment in time, thought, and money to achieve the most efficient and practical result.

After the job the package has to do has been stated, the first limiting factor is

Costs: The nature of the merchandise, its retail price, the quantity packaged, will closely determine the maximum cost limit. On a dollar face powder this may be ten cents; on a kitchen soap, it may be two cents, but every one concerned with the design or the production of the package should be furnished in the beginning with a maximum cost limit within which to work. When this limit has been established, it is possible to choose

Materials: In terms of maximum cost al-

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lowable, it is advisable to consider all the *possible* materials. A given unit of merchandise may possibly be packaged in glass, tin, cardboard, transparent cellulose, molded compounds, paper, or other materials. The cost limit may rule out some of these immediately, but those that remain should be given comparative consideration. Knowing the possible materials, the choice of *which material* is dependent upon two factors. The first is its suitability to contain the merchandise. The second, its suitability to sell the merchandise. Production factors and the matters of plant handling, as well as the entire distribution system through which the package must go, deserve precise consideration in choosing the material for a container and a protector of the merchandise.

In rating it as a "selling" package another set of considerations will involve consumer convenience, use in the home, display value in the store, etc., even to such details as practicability of furnishing dummy packages for display purposes at a low cost. These factors immediately bring up the

Merchandising Plan and Objectives: The design of a package should be a direct result of the merchandising plan behind the product. Business no longer decides that it will put out a pint of this, or three ounces of that, at such and such a price. It plans to suit consumer convenience, to out-think competition, and to promote and sell its merchandise in the logical places and the logical sizes, and at the logical prices, before it determines on package design. Shape, size, and appearance must carry out the necessities of merchandising objectives. The copy on the package and the use of the package in radio and printed advertising, in sampling, and in display, will conform to the plan in which all these promotional elements are unified.

At this stage the thinking concerning the necessities and objectives of the package has brought it to a point where the designer can begin to *create* the package. To approach the problem with the idea of designing a package first and working it into the business later, because the appearance of the package seems attractive to the executives, is to function backwards. Every experienced designer insists upon knowing what the job of the package is, how it will be produced and handled, and into what sales plan it fits, before he touches pencil to paper. To design a package without knowing what it must do is a dangerous waste of time. For this reason the fairly common practice of manufacturers who ask designers to "work up an attractive sketch" makes no sense whatever. It is designing in a vacuum.

Creating the Design: When the price limit is known, the possible materials chosen, and the merchandising plan established, the designer can begin his work. His first step is to draw up the specifications of

Size and Shape: The package is always an object in three dimensions. It has something inside it; weighs a certain amount. It must be packed and shipped and stacked and handled. It runs a constant risk of being torn or dented or soiled. The designer establishes a cubic size and gives this size a practical and economical shape. His next consideration is

Convenience: We have machines to close packages and trained operators to manipulate them. But packages are opened by *amateurs*. The housewife has only her two hands. She should be able to open the package and, if necessary, reclose it easily, cleanly, and quickly. This is, unfortunately, not the case in literally thousands of packages now on the market. One of the designer's objectives, therefore, is always to make the package as convenient as his materials, cost, and ingenuity will permit.

Liquids should pour according to the necessities of their use; foods or cleansing creams should be removable from their containers without waste. If an applicator is needed, the best possible construction should be developed. No available improvement in convenience should be neglected, because a more thoughtful competitor may at any time incorporate it in his package. This is why the designer must devote careful thought and all the ingenuity he can command to giving the maximum convenience to the package. At this stage the elements of the package as an object and its functions as a container have been determined. It remains to give the package its

Decoration: The decoration of the package can always be reduced to the fundamental order of the elements of the design. Bands, circles, panels, etc., frequently form the basic plan of the decoration. The name, trade mark, copy panels, and decorative devices of various sorts, are the contributory design elements and take their respective places *in the order of their importance* within the basic frame of the design, which we can term the

Layout: The scheme of the package decoration must have a certain balance through all its parts. It should take advantage of the third dimensional nature of the object. A band, for instance, will lead the eye from one flat surface into another plane and enhance the impression of bulk in the package. The layout establishes the order of the entire design treatment and it is this order which makes the package a unified whole. We get a distinct and clear impression rapidly and tend to *remember the package whose design is well organized*, well laid out. The layout determines the spacing and placing of the

Copy: The package should state in words the essential facts of its name, use, chief appeals, possible merits of the product it contains. In many cases it may also sell related products in the manufacturer's line. It can carry out some of the functions of an advertisement, but the decision as to what copy is appropriate to the package and what is the order of importance of the various parts

of this copy story, must be decided for each package design.

On the market today, there are many packages whose copy could be effectively re-written. In a large number of instances it could be cut by half, or more, and improved. No matter what space on the package is available, it is a mistake to crowd it beyond the consumer's incentive to read. It is a far greater mistake to devote valuable space to copy which is non-essential and confusing. In many instances the cost of the package is as great or greater than the actual manufacturing cost of the merchandise contained. Since the manufacturer is paying relatively so much for his package, he should utilize the greatest care and the utmost efficiency on the surface of that package, to sell his product and to enable his customers to get the maximum use from their purchase of his merchandise.

A most effective means of accomplishing this without adding to his cost is by writing his copy effectively and then placing it on his package with great care and discrimination. Many packages today are not carrying a complete, clear, and effective copy story in the space that is available. The trend is to utilize the display face of the package to get attention and make a favorable impression *at a distance*. The entire rear face of the package can then be used to tell the story of the product and its use. This panel is designed *to be read with the package in the hand*. Thus the essential organization of the majority of the package is one side—the display face to carry at a distance, like a poster, while the copy side, with possibly the ends and lateral sides, tells a more complete and detailed story upon close inspection. Copy can only be shown in

Lettering and Type: It is not enought to write the story of the package effectively. It must also be *shown* effectively. Hand-lettering presents the most flexible and decorative means of writing on a package. It is well worth while having all the decorative and display elements of the copy carefully hand-lettered. This gives a distinctive style and avoids the possibility of similarity which is always a risk when type faces are used. For the smaller size copy, to be read with the package in the hand, type is the logical choice. This type should be carefully set so that it has maximum readability and forms a design unit which will conform to the layout scheme. The final effectiveness of many packages now in the stores is considerably impaired by the mediocrity of their lettering. The expense of excellent hand-lettering is so slight a cost in terms of the package which is to be produced in quantity over a period of years that the use of any but the best possible lettering for the important parts of the copy on a package is indefensible.

Color Scheme: The science of color is one thing and the psychology of color is another. Colors can be measured and classified scientifically, which is of great value technically. Humanly, however, we each have different reactions to colors. The safest procedure, as far as the package is concerned, is to get a broad and typical reaction to the color scheme. One technique for choosing the final color scheme is to have the package made up in several different colors and to get a consumer opinion either from a typical group or from an actual sales test in a store. The opposite technique is to consult a color expert or designer who has specified colors for years. Between these two means of reaching a decision there usually lies a great waste of argument.

Certain general considerations should not be neglected. The dominating color of competitors' packages may serve to simplify the problem. Food products will naturally use appetizing colors; packages which go into the home wisely refrain from too garish and crude a color treatment, as this is offensive to many women. Display packages and display containers in general may be permitted them to use greater liberty, since their prime object is to attract attention in the store. One of the soundest aids is to take the package design in dummy form and place it in its logical position on the shelves of typical stores. This simple experiment may reveal certain faults or certain excellencies which would not be apparent in the package on a director's table or an executive's desk.

The color scheme can serve another important function by distinguishing between similarly packed products with great effectiveness. Various flavors of the same product are immediately identified by using different colors on the package. In some cases, two forms of the product can be distinguished, without breaking down family resemblance, by simply reversing the color plates.

In general, a light colored package, free from restricting panels, gives a larger appearance than a dark package. The recent trend toward transparent cellulose wraps and protective varnishes enables the designer to utilize white backgrounds and lighter and brigher colors without fear of the package's soiling. One rather clear trend today is this tendency to brighten up the store and freshen up the package by employing larger spaces of the lighter shades or white. Color is of enormous importance in the design of most packages. Great progress has been made, and is being made, in the production and application of color. Not to take advantage of this progress to the full in the design of the package is to overlook an available means of attracting more attention and selling more merchandise.

Summary: The factors governing package design are both numerous and highly technical. Their accomplishment, however, must be an exceedingly effective human object. The only design any serious manufacturer can afford to produce is the best that can be developed. Whatever amount the creation of this design may cost will be an insignificant investment in economical production and effective

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merchandising when contrasted with the results.

Package design is a recent development in the American business strategy. It is a direct outgrowth of the rapid changing in the consumer's buying habits and the redesign of the retail store. It has stimulated the growth of new materials, new processes and new machines. It has also produced a new business technician, the designer. The designer is neither an engineer nor the usual person described as a "commercial artist." He must consider both production matters and merchandising objectives. He deals with costs, with machines, with stores, and above all with consumer preferences. Through the Depression the contribution of the trained package designer has increased in importance and clear examples of the results achieved in improved package design are rapidly accumulating.

Above all, the trained designer's approach to the packaging problem is sound and valuable. This approach is to assemble the facts of production, cost limits, merchandising plan. Within these he must create a new, economical and effective design. This design, wherever possible, should be tested on typical consumers in sufficient quantity to get a dependable reaction.

It costs money, and it takes time to change a package design, but there is much to be gained through material and production economies, greater distinction in competition, and increased acceptance from that part of 130,000,000 consumers to whom the merchandise is offered for sale.

Below is a check list of the chief factors affecting package design. If those concerned with the design of a package will take the trouble to fill in the blank spaces, they will have organized the design problem very much as the independent professional designer approaches it.

CONVENIENT CHECK LIST OF FACTORS GOVERNING PACKAGE DESIGN

Product:

Where Sold: Nationally....; or Section.....
Type of Stores: Grocery....; Drug....; Hardware....; Specialty....; 10c....; Dept.....; Chain....;
Type of Display: Shelf....; High....; Low....; Counter....; open....; under glass....; Window.....

Who Buys: Women.... Men.... Children....
Old.... Young....Special Markets....

Why: Appeal: (as beauty, health, appetite, price, etc.)
Primary.....
Others.....
.....
.....
.....

What price by Sizes:
Largest Selling....; Next....; Next....; Next.....

Suggestions:
Objections to present packages.....

Change Desired: Complete.....
Moderate.....
Conservative.....

Production Data:
Approximate Annual Quantities.....
Preferred Sources of Supply.....
Maximum Package Cost Item Can Stand.....
Handling in Plant..Full Automatic..... Machines
Semi Automatic.... .....
Hand Automatic.... .....

HOW TO USE TYPE ON YOUR PACKAGES

by Egmont Arens

IN selecting a type face for a package the first thing that the designer ought to do is to ask his client: "What do you want this type to do? Do you want it to be very fast-reading and have great legibility? Do you want it to be read a foot away from the eyes, or five feet away from the eyes, or twenty yards away from the eyes?

"Do you want it to have atmosphere? Do you want it to have an American or a foreign look? Do you want it to signify strength or delicacy? Do you want it to appeal to men or to women?"

After obtaining the answers to these questions and a lot more, you are ready to begin picking your type. Of course it is impossible to lift the problem of type entirely away from the problem of color, because the color of the background largely determines the characteristics of the type selected for easy reading. For instance, a very delicate lettering, like Futura Light or Stymie Light, is easily read when printed black on a white background. It becomes increasingly hard to read as the background is darkened. The same lettering printed white on a black background (or any other dark value color) will be very difficult to read, and the medium or bold face lettering should be substituted in such a case.

All other things being equal, the fastest reading type does the best job under modern merchandising conditions, where there is a great deal of competition of adjoining packages. No package should ever be put into production until it has been determined in actual experiment that the typography can stand up against competing packages. A good way to test this is to stand your package up on a shelf with half a dozen of the competing brands and ask



THE packages in this group have been selected to demonstrate effective use of typography. They divide themselves roughly into four groups:

1. Those using sans serif (Futura) type. Under this heading come Kerfs, Alba Tonic Salts, Nivea Creme, Tick, Van Camp Tomato Juice.

2. Those using the condensed gothics which have lately become the vogue: Manischewitz Matzos, Bakes-All, Renulac, Del Ray Soup, Tripes, Budge-it Cleaner.

3. Those using Bodoni type with script. Very smart effects are possible with the use of this combination, as demonstrated by several packages of the Macy line, Quinlan Cream, and Carter's Ink.

4. Those using a new type of lettering which has very recently come into fashion, its characteristics being the round-topped A, M, N, the condensed S, etc., as in the special characters that may be bought with American Type Founders' Raleigh type face. This lettering style, which approximates hand lettering, is well demonstrated by Dr. West's Toothpaste, Huyler's Ice Cream, Couettes, Sultana Baking Powder and Bokar Coffee.

Package selection by Egmont Arens.

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several people to come into the room, look at the packages for five seconds, and then walk out and write down the names of the brands that they saw. If they write down the name of your package first, you may be sure that it is the fastest reading of the lot. That is why, except in special cases, types with the thick and thin lines, such as Bodoni, Goudy, etc., are not suitable for packages. They are too slow reading at a distance.

The tendency toward simplicity in packages—especially in their typography—which was advocated a few years ago by myself and a number of other typographers, has now become a general fashion; so much so, indeed, that any one who puts out a complicated looking label is left at the post in the race for consumer acceptance. What I like to call the "stream-lined" types, the *sans serif*, such as the Bernhard Gothics of the American Type Founders Company, the Futura of the Bauer Type Foundry, the Kabel of the Continental Typefounders Association, are still going strong in the up-to-date typography. These have been used so much, however, that recently there is a tendency to reach out for a little variety. However, the *sans serif* types are still excellent for use on the backs and sides of packages for directions and blurbs about the product. For this purpose, when printing a dark type on a light background the medium weights are best; and when printing in reverse—that is, white on black—the light faces should be avoided. This is because when the label is actually in production on the printing press, too fine a white line is liable to fill up with ink.

In the endeavor to get away from the strictly *sans serif* types some interesting new faces have become popular favorites, such as the Girder types (Continental), the Stymie types (American) and the Beton (Bauer). The Girder was inspired by, and named after, the steel I-beam. It adds a certain amount of eye-interest to the fast-reading qualities of the *sans serif* types.

The most interesting development of typographical fashion in recent years has been the return to the fashions of the gay nineties. The result has been the unearthing of a number of tremendously interesting types which have a naive and old-fashioned look to them, but which, when introduced into modern practice, discovered themselves as being very effective for present-day usage. For instance, the American Type Founders have resurrected some quaint old-time Victorian type faces, suc has the amusingly renamed "P. T. Barnum," "Gold Rush," "Jim Crow." Some of these might be used very effectively on modern packages.

Another interesting resurrection is the condensed Gothic, which makes it possible to print longer words in short lines. The American Type Founders' Raleigh is a case in point. This type has been modernized by the addition of additional characters, such as the A, K, M, N, S, which make it effective in modern display. Another type face which has a decidedly mid-McKinley atmosphere is the Continental Typefounders' "Ortleb." This is a shaded Gothic which, if used with discretion, ought to have very interesting possibilities on a package.

There is a certain type of package which endeavors not so much to attract attention from a distance, but which is designed to be smart and appealing when held in the hand. Under this heading come most of the cosmetics and other items of particular appeal to women. For such packages types of the Bodoni family are very well suited. If given plenty of white space around them, the letters, with their alternating bold strokes and delicate lines, give a smart, well-groomed appearance that is at once chic and fashionable.

A word should be said about the types which undertake to imitate hand lettering and script. As a rule such types are not desirable because it is impossible to translate the freedom of script to type. However, the script types of Bernhard, produced by the Bauer Type Foundry, are still very good style. The most beautiful new type in this category is the "Trafton" script, also produced by Bauer. It is a type of great distinction, but will no doubt be copied so extensively in the next year that it will probably wear itself out. A script type is not a fast reading type, and therefore should be used very sparingly on packages. It has a definite use, however, where used in contrast to the bold faces.

A few "don'ts" for package typography might be in place here:

Don't use fussy type faces. Insist on legibility.

Don't use "bastard" type faces. Under this category come the many pirated copies of some original type design that becomes popular. In nine cases out of ten the original designer is better than his imitators.

Don't overload the front of your package with type. Rule out everything that is not absolutely necessary. You will be surprised how little you really need.

Don't crowd your type. Type, like a living being, cannot do its work without air.

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COLOR

by Carl E. Foss

THE subject of color has taken on tremendous concern in this day and age primarily because it is forcibly brought to our attention in a multitude of ways. In the past the use of color was restricted, due to the many difficulties arising in the handling of the color mediums. Now that color is available to a greater extent than before and its effect is utilized in all fields of endeavor, it is natural that we should become interested in its proper usage, an interest which becomes more vital as time goes on.

The use of color enters into the personal as well as into business and pleasure. At no time are we free of its presence. While civilization has given us a general color appreciation, too often in our attempts at color arrangement we overstep the mark and our results turn primitive. We are also aware of the effect of color on our minds and the manner in which color may be fitted to our moods. Usually we like color effects that are classed as harmonious, and resent haphazard color arrangements.

In our economic and civic life, color plays an important part. Our attention is gained by color in contrast. Our purchases are also affected by color. Invariably when purchasing, an attempt is made to associate the color of the new article with the color of the articles already on hand. These attempts at color balance are continually being made by us all. We strive to balance color in the furnishing of our homes; we attempt the same thing in business. If we want to place a product on the market, we allow color to vie with utility.

Such universal use of color and our general color appreciation surely will benefit by a common language for color reference. At present too many different sets of terms are in use. Each, perhaps, may have its advantages in its own field, but, when colors specified by such terms are required in other fields, the terminology is hopelessly foreign.

The first step in color education for the layman would be the specification of color regardless of the way in which the color was produced. When this step is made, the others will follow in a more definite and reasonable manner. The advanced steps are found in chemistry, physics and physiology. The chemist can explain the production of natural and artificial pigments and dyes and, to a certain extent, their intermixture. The physicist can explain light theories, radiant energy measurements, etc., and the physiologist can explain the function of the eyes and allied nervous system in receiving these light impulses.

We may sum up the interests of all phases of science by saying that color is a sensation. Color is our interpretation of an excitation of the retina of the eye by light (radiant energy) which is transmitted through or reflected from some interfering substance which may selectively absorb that light. Everything we see is color. Color difference alone is responsible for form and shape.

SPECIFICATION OF COLOR

In the specification of color in which the layman is most interested, we must use three constants as follows:

1. Hue is the fundamental characteristic of color. It is the attribute by which we distinguish a red from a yellow, a green, a blue or a purple. This term has found universal use and acceptance in all fields of color and in all notations.
2. The second characteristic is relative to light reflection. Several terms may be used to describe this feature, such as Value, Luminosity, Brightness, Brilliance.
3. The third characteristic is relative to light purity. Several terms may be used, such as Chroma, Saturation, Intensity.

Perhaps the best way in specifying color is to take the three dimensions given by Munsell, whose works are more easily available than others on the subject. He uses Hue, Value and Chroma. His definition of Value is given as the lightness or darkness of any color. Then Chroma becomes the weakness or strength of a color. A gray, accordingly, can have no hue and no weakness or strength, it possesses only lightness or darkness. The Value difference of certain colors may be generally divided into two major classes, i.e., tints and shades. Tints are colors in which white predominates; shades are those in which black appears. Pink is a high value red or a tint of red; maroon is a low value red or a shade of red. Other hues also follow this general scheme.

The correlation of these three dimensions may seem complex, but they may easily be understood if the method given below is followed.

If a heterogeneous combination of colors, i.e., all conceivable colors, is taken, the first logical step would be to separate the grays from the other colors. This gives two sections, Achromatic Colors (grays) and Chromatic Colors.

The smaller group would be the Achromatic Colors. These colors can be arranged in a vertical series from white at the top through a progression to black at the bottom. Ten steps of Value on a decimal scale are sufficient for most work. This clearly shows the difference in light reflection. The final arrangement of the Achromatic Colors produces a

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complete Value scale of gray. This sequence is readily understood and generally accepted by those who make use of color designation.

The logical arrangement of the Chromatic Colors then should follow the same general lines. If this is done, it will be found that all these colors can be set in groups which correspond with each step in the gray Value scale. All the colors in each group will then conform to one constant, i.e., relative lightness or darkness or Value.

Now that one constant has been completely established for all color and knowing that Achromatic Colors have only this one dimension, it remains to arrange the minor groups of Chromatic Colors according to their other attributes, i.e., Hue and Chroma.

When each group of these colors is placed in circle order, they will inadvertently be arranged in an orthodox rotation, showing the sequence of red to yellow to green to blue to purple and back to red. This arrangement gives a hue separation, but it will be found that certain colors of a definite hue appear more or less subdued when compared to others of the same hue, the Value remaining constant. This difference in saturation is notated as Chroma. The Chroma arrangement can be shown as spokes of a wheel with increasing saturation or Chroma ranging out from the hub. The grayed colors lie close to the hub and the strong colors at the ends of the spokes.

At various Values certain hues will be found to be of greater Chroma than others, a condition which varies throughout each Value step. At the higher Values, yellow will be of greatest Chroma; at the lower, a purple-blue will predominate. Other hues arrive at maximum Chroma at Value positions on a fairly direct line between these two extremes. By superimposing these three attributes a color solid is obtained in which every conceivable color will have a definite place.

As long as there is a decimal notation for Value it will be very much in order to have also a decimal notation for Hue. Starting with five fundamental hues, red, yellow, green, blue and purple, the intermediate hues will then be yellow-red, green-yellow, blue-green, purple-blue and red-purple. This number of hues gives a fairly smooth hue circuit. If it is desirable to know the complement of any hue it will be found to be exactly opposite, lying on a straight line which passes from the first hue through the gray axis.

Various types of color harmony may be found in definite geometrical order by such an arrangement. If an analogous harmony is desired, any combination of colors of neighboring hue may be used. If harmony by contrast is desired, colors of one hue may be used with colors of complementary hue. The complementary color can be split into its two neighboring hues if so desired. In fact, any symmetrical arrangement of this basis will be harmonious. If there is need to be exact about area relations, this, too, may be arrived at from these notations.

Many color problems may be solved by the use of notations of this kind. Of course, a standard set of charts showing definite steppings of color is necessary. This book of charts must show regular steps along a psychological line. The Munsell Book of Color is about the best work available, possessing all these qualities.

Color standardization has been carried on quite successfully in many fields by the use of Munsell notations with a surprisingly high degree of precision. In agricultural work, designing, printing and many other lines, a definite notation universally used will bring about the solution of almost every phase of color standardization.

Only by universal appreciation of this necessity and genuine cooperation and education along these lines can any color understanding be had.

INK IN PACKAGE MAKING

by Carl E. Foss

WHEN a printing ink is ordered in the production of a package, little or no consideration is lavished upon the innumerable functions expected of that ink. Yet it is unconsciously assumed that, for the producing of an attractive and durable package, the following qualities will be present. The ink must reproduce the design with a fair degree of faithfulness of both color and detail. The design and color must be proof against not only the action of the elements, such as sun, heat, rain, etc., but must also resist the chemical action of the packaged product itself. The ink must also have a definite affinity for the stock upon which it is applied. It must dry well, producing either a glossy or a dull finish in accordance with the requirements. Then, too often, it is expected to stand up even if the stock on which it is used does not.

This seems a formidable list of requirements for printing ink to fulfill. However, if proper cooperation between ink maker and ink user is had, inks which will satisfy most of these requirements can be made.

While proper design for a package is a complete subject in itself, the color reproduction feature of such design is extremely important. When a design

is accepted, the reproduction is decidedly an engraving job. However, the reproduction of the colors of that design is another factor. It is at this point that inks having characteristics in every respect suited to the job must be chosen. The pigments used in these inks should be so selected as to give, without sacrificing other properties, the best color approximation possible. It would be well to list some of the properties of the various pigments used in printing inks, thereby explaining the color limitations. While the compatibility of pigments with vehicles must, because of its complexity, remain a problem of the inkmaker, a general rule governing this may be stated as follows: Generally the natural earth pigments make inks of poor working qualities; the artificial inorganic pigments make inks of good working qualities, and the organic pigments make the finest working inks.

The other characteristics of pigments are so distinctive that no general rule fits any case; the variation is so great that any attempt at correlation must be in table form with many descriptive terms to explain the relative degree of failure. Within reasonable limits, a table covering only general families of pigments with but certain important tests is all that is possible.

As above indicated, the pigments are divided into three definite classes: Natural Inorganic, Artificial Inorganic and Organic. The usual tests for such pigments are: permanency to light (showing both actual outdoor tests and indoor fadeometer tests), acid and alkali, alcohol and paste.

In the acid test a weak acid such as vinegar is used; in the alkali test a two per cent caustic is used. The alcohol test is for an exposure of short duration as in spirit varnishing, while the paste test is made by stroking a neutral paste over the printed areas. Other tests, such as wax, lard, water brine, baking and so forth, could be added as, with no limit set, property tests can go on indefinitely. In these tests

PROPERTY TESTS OF COMMON PIGMENTS USED IN PRINTING INKS

Pigment	Indoor	Outdoor	Paste	Alcohol	Acid	Alkali
			Natural Inorganic Group			
Raw Umber	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Raw Sienna	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
			Artificial Inorganic Group			
Burnt Umber	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Burnt Sienna	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Cadmium Red	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
English Vermillion	Excellent	Good	Excellent	Excellent	Excellent	Excellent
Orange Mineral	Good	Poor	Excellent	Excellent	Good	Good
Chrome Yellow	Excellent	Excellent	Excellent	Excellent	Good	Poor
Cadmium Yellow	Excellent	Good	Excellent	Excellent	Excellent	Excellent
Zinc Yellow	Excellent	Poor	Fair	Excellent	Poor	Poor
Chrome Green	Excellent	Excellent	Excellent	Excellent	Excellent	Poor
Iron Blue	Excellent	Excellent	Excellent	Excellent	Good	Poor
Ultramarine Blue	Excellent	Fair	Excellent	Excellent	Poor	Excellent
			Organic Group			
Bismarck Brown	Fugitive	Poor	Poor	Fair	Poor	Poor
Maroon	Excellent	Fair	Excellent	Good	Excellent	Poor
Madder Lake	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Rhodamine	Fugitive	Poor	Poor	Poor	Fair	Poor
Rhodamine (Perm)	Good	Good	Excellent	Poor	Excellent	Good
Eosine	Fugitive	Poor	Poor	Poor	Poor	Poor
Lithol Rubine	Excellent	Poor	Fair	Good	Poor	Poor
Lithol Red	Good	Fair	Excellent	Good	Excellent	Poor
Scarlet Pulp	Fair	Poor	Poor	Excellent	Poor	Poor
Pigment Scarlet	Excellent	Fair	Poor	Excellent	Poor	Poor
Para Red	Excellent	Excellent	Excellent	Poor	Good	Excellent
Toluidine	Excellent	Excellent	Excellent	Fair	Excellent	Excellent
Red Lake D	Good	Fair	Excellent	Good	Poor	Good
Red Lake C	Fair	Fair	Excellent	Good	Excellent	Fair
Fire Red	Excellent	Excellent	Excellent	Fair	Excellent	Excellent
Permatone Orange	Excellent	Excellent	Excellent	Good	Excellent	Excellent
Orange II	Fugitive	Poor	Poor	Good	Poor	Poor
Hansa Yellow	Excellent	Excellent	Excellent	Good	Excellent	Excellent
Tartrazine Yellow	Poor	Poor	Poor	Excellent	Poor	Poor
Quinoline Yellow	Poor	Poor	Poor	Fair	Poor	Poor
Naphthol Yellow	Poor	Poor	Good	Excellent	Poor	Poor
Acid Green Lake	Fugitive	Poor	Poor	Good	Poor	Poor
Malachite Green (Perm)	Good	Fair	Excellent	Good	Excellent	Excellent
Brilliant Green	Good	Fair	Excellent	Good	Excellent	Excellent
Setoglaucine	Good	Fair	Excellent	Fair	Excellent	Good
Patent Blue	Fugitive	Poor	Poor	Excellent	Poor	Poor
Methylene Blue	Fair	Poor	Poor	Excellent	Poor	Fair
Induline Blue	Fair	Poor	Excellent	Fair	Good	Good
Indigo	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alkali Blue	Excellent	Fair	Excellent	Poor	Excellent	Fair
Victoria Blue	Good	Good	Excellent	Poor	Excellent	Excellent
Methyl Violet	Fugitive	Poor	Good	Poor	Poor	Poor
Methyl Violet (Perm)	Good	Good	Excellent	Fair	Excellent	Excellent
Alizarine Purple	Fair	Poor	Poor	Excellent	Poor	Poor

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the degree of bleed or failure is recorded in progressive terms such as fugitive, poor, fair, good and excellent.

While we have so far covered many properties of printing inks, there are others which are also important. If transparent inks are required to attain certain color effects with a minimum number of impressions it will be found that, if these points are gained, other characteristics may be lost.

All in all, suiting an ink to a job shows itself to be more of a problem than would be evident in a casual observance of the process. Although most calls for ink come to the inkmaker with almost no other data, he invariably takes it upon himself to find out as much about the job as is possible. With all this information on hand, the ink can be made correctly and the possibility of ink failure greatly diminished. Ink manufacturers are prepared to cope with these problems and extend every cooperation to manufacturers and users of packages.

PRINTING PLATES FOR PACKAGES

by B. R. Preston

ANY discussion of the making of engravings must of necessity be tinged with technicalities that usually are difficult for the average buyer of engravings, in dealing with the production of packaging engravings, to understand.

First let us consider the general run of commercial engravings—a deviation from specified size of 1/32 in. or 1/16 in. is seldom of any consequence. If the work is halftone, a fine screen is used—usually 133 lines to the inch—which fine screen alleviates the engraver's problem of retaining definition and fine details in his reproduction. In many cases the printing is done directly from the original engravings rather than from electrotypes, which eliminates the necessity of particularly deep and cleanly etched plates, as is the case when the engravings must be electrotyped. The usual commercial job is carefully made ready and printed on a good grade of enamel paper with a superior grade of ink. With ordinary care on the part of the engraver and printer, good results are not difficult to achieve.

Consider now the requirements which the packaging plate must meet. Even though the negatives the engraver must use in producing a job will stretch, shrink or distort, and the metal which he uses will change size as it is repeatedly annealed during the etching process, the experienced packaging engraver will deliver plates within less than 1/64 in. of specified size. Can any one excuse a packaging job on which the design misses the score by over 1/32 in.? If the packaging job requires the use of halftones, a coarse screen is often used—100 lines to the inch or coarser—to print successfully on carton board or bread wrapper stock, where the surface is rough and uneven as compared to enamel paper. Producing a faithful reproduction with these coarse screens requires special handling and re-etching that is seldom necessary with the fine screen job. Carton board will vary in caliper on a single sheet as much as 3/1000 in., which deviation no amount of makeready can correct. The carton printer must then add enough extra "squeeze" to the impression to allow for the deficiencies of the stock. To do this and still produce good printing, he must use plates that have been etched deep and clean, that will not fill up with ink, and that will stand the strain of this extra pounding. Packaging work is usually printed from electrotypes, which means the engraver must deliver plates that will electrotype successfully, without "etching shoulder" or "undercut" or "dirty bottom." The specialist knows and understands these special requirements.

The production of electrotypes for packaging use, while apparently not as involved as the making of art work and engravings, is nevertheless one of the most important links in the chain. It is the final step in the production line, and unless extreme care is maintained in this branch of the work, all of the skill and refinements put into the art work and engravings is just water over the dam. The plated shell of the electrotype must be of sufficient thickness and tough texture to deliver thousands upon thousands of good impressions in spite of the abrasive action of ink rollers, rough surfaced stock and the punishment of added "squeeze." The molding and subsequent electroplating must faithfully reproduce all detail of the pattern, however fine, and the careful electrotyper makes an issue of this point with his workmen. The backing metal must be sufficiently elastic to prevent the possibility of crystallizing and breaking on the press, but at the same time hard and tough enough to stand up under the steady pounding of the impression without "going down" or losing some of its thickness and uniformity—a difficult combination. In this regard particular electrotypers have found it imperative to use a backing material made to a specific formula from virgin metals. The resmelting of old plates, worn out batteries, and junk lead may be satisfactory for commercial electrotypes, but it cannot be used successfully for packaging plates.

The finishing of the plate must be done with extreme care to preserve halftone dots and fine details in

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their original value. The experienced electrotyper to the packaging industries will deliver precision rectified plates to an exactitude of .001 in. and will properly notch his plates for ease of nesting on the press.

Exact size, which is of such paramount importance on most packaging work, often presents a serious problem in the production of electrotypes; and your electrotyper may—with a large sigh of resignation—point to one of the notes on his price scale, which in effect reads, "Electrotyping is not an exact science, and we cannot be responsible for the natural shrinkage in our plates." All of which is true. But a few plate makers have developed ways and means of eliminating this natural shrinkage, and every day electrotypes are produced the exact size of the patterns from which they were made, that will print in register interchangeably with the patterns—and this regardless of whether the electrotypes are made flat or curved for rotary printing.

There are organizations which, through years of association with and experience in this specialized type of work, have learned the real significance of good designs and printing plates for packaging use. They have learned to avoid the difficulties and pitfalls lying in wait for the inexperienced when attempting to slide through a piece of work because it is "just another package job." These difficulties are costly in re-makes, time, and general results; and it is the organization using the packages who eventually, in one way or another, pays the fiddler.

ADHESIVES IN PACKAGING OPERATIONS

by D. V. Williamson

IN the development of modern packaging, adhesives play an important part. Their work is done in such a silent and prosaic manner, however, that frequently they do not receive the attention to which their important function really entitles them.

Consider some of the packaging operations of today where adhesives are used:

Manufacture of set-up paper boxes.
Gluing of folded paper boxes.
Sealing of individual cartons after they are filled with goods.
Wrapping of individual cartons with printed paper labels or transparent cellulose wraps.
Wrapping of products directly with transparent cellulose wraps and sealing them.
Forming window box cartons with transparent cellulose sheets.
Tight wrapping of carbons with printed paper labels.
Labeling of bottles.
Labeling of cans.
Manufacture of paper tubes and cans.
Manufacture of fibre shipping drums.
Manufacture of bags using plain or waxed paper or transparent cellulose sheets, plain or moistureproof.
Sealing of fibre and corrugated shipping cases.

The adhesive situation on these operations is complicated by many factors, among which are: the nature of the surfaces to be glued; the method of applying adhesive, and the speed of operation.

Adhesion, primarily, is a matter of surfaces. If an adhesive is not chemically attracted to the surfaces it is to join together it is useless for that operation. There is no such thing as strength in an adhesive unless the surfaces to be glued together are included in the thought. For instance, an animal glue which makes a joint in a piece of furniture that is actually stronger than the wood itself cannot hold a spot label on a tin can twenty-four hours. The label would drop off when the glue dried because the surface of the tin repulses animal glue instead of attracting it, and all of the dried glue would be found on the label which fell off the can.

A generation ago the only kind of glue in general use was animal glue. This product is made largely from the hides and bones of animals and is an exceedingly useful commodity in many lines of industry. It has, however, some inherent characteristics which make it of limited value in modern packaging. Among these may be mentioned the fact that it can be used only when heated and that it has a more or less objectionable odor.

In the last ten or fifteen years there has been a great advance in the technology of an entirely different class of adhesives often referred to as vegetable glues since they are derived from vegetable rather than animal sources; chiefly from corn and tapioca. These products can be used cold and are odorless, and the vast majority of the labeling and sealing operations on packaging machinery are performed by such adhesives. When used with most kinds of paper or boxboard they develop a strength of joint in excess of the strength of the materials they join together. They possess, moreover, many other desirable properties for machine operation.

Most of the adhesives for packaging operations are shipped by the adhesive manufacturers in prepared form ready to use, either as liquid glues or heavy bodied pastes, which products do not deteriorate with age. There are sold, however, products known as dry cold water soluble glues. These products are shipped dry and prepared for use by the

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packaging manufacturer by adding cold water, mixing properly and then waiting for the necessary chemical actions to take place. Properly handled, and in some operations, they give good results.

The danger, however, lies in careless preparation, improper measurement of quantities, insufficient time allowed for the necessary chemical actions—all factors which experience has shown tend to produce unsatisfactory and non-uniform results. Moreover, such products, in many cases, must be used up in a day or so or they will start to deteriorate on standing. Again, it is a chemical impossibility for the adhesive manufacturer to incorporate in such dry products all of the materials that he can in liquid products and many ingredients are used in manufacturing prepared liquid adhesives which give the resulting products properties impossible in the dry products.

In the packaging plant the cost of the very best adhesives is one of the smallest elements of packaging expense, and yet the continuous and proper functioning of the adhesive is really an important matter. So, instead of a packaging manufacturer feeling that he is saving freight in purchasing dry cold water soluble glues, the suggestion is offered that when he buys prepared adhesives made exactly to meet his particular requirements, he is then paying freight on satisfaction.

ADHESIVES FOR TRANSPARENT CELLULOSE

Transparent cellulose wrappings are now being employed in practically every phase of packaging, and with them there has developed an insistent demand for suitable adhesives to use with them. To meet this demand has not been easy because of the many variables and difficulties present.

With plain cellulose sheets careful chemical balance must be present in the adhesive used as otherwise the adhesive will attack the sheet and embrittle and weaken it. Excessive puckering of the sheet at the glued joint is another item that will occur if the adhesive is not designed for its delicate purpose.

There is an important difference between the gluing of paper and boxboard to itself and the gluing of plain cellulose sheets to themselves. With the paper and boxboard thin films of adhesives are desirable; with the latter, thick adhesive films give stronger joints.

It makes a difference, from an adhesive standpoint, whether the operation is that of joining the plain transparent cellulose sheets to themselves, or to paper or to boxboard. An adhesive that gives the best results in the first instance may not also properly perform in the latter case.

Adhesives have sometimes been blamed in the case of window boxes made with plain transparent cellulose sheets because of subsequent warping and twisting of the boxes. The cause of this trouble does not lie in the adhesive. It is found in the hygroscopic nature of the sheets themselves. They take on moisture from the air in humid weather and expand, and in dry weather they give off moisture to the air and contract. The adhesive has nothing to do with this.

With moistureproof cellulose sheets other difficulties arise. These sheets are made of the plain cellulose material coated on both sides with a very thin layer of moistureproof material and the nature of this coating is such that adhesives designed for the plain sheets offer no adhesion whatever on the moistureproof surfaces.

It is possible to use solvent types of adhesives which soften this moistureproof coating and give some adhesion when heated metal plates are pressed down on the glued joint while the film is thus softened. The resulting strength of joint is necessarily rather weak, however, because it is only the outer moistureproof layers that are joined together and the thickness of this layer is but .0001 in.—about one-tenth as thick as tissue paper.

Much stronger joints are possible, however, with adhesives which will penetrate the outer moistureproof layer and take hold of the plain cellulose sheet inside. These adhesives are of such nature that, while they may be applied properly with rolls on machines, they are not suitable for capillary wick action (as is possible with solvent type adhesives) and this is a point for machine manufacturers to bear in mind when designing machines to seal moistureproof cellulose sheets where really strong and reliable joints are desired—as on larger packages which may have to stand up for some months of time and in various climates.

One of the most troublesome difficulties with adhesives for moistureproof cellulose sheets is to produce sufficient initial tack. With few exceptions adhesives for the moistureproof sheets do not offer as quick initial tack as is possible with the plain sheets, or with paper or boxboard. This deficiency in initial tack is cleverly offset in the design of some machines by causing the freshly glued joint to pass electrically heated hot plates, thus immediately enhancing the tackiness. Proper adhesives yield fast production with this method.

Here again, with moistureproof sheets, it makes a great difference as to whether the operation is to join the sheets to themselves or to paper or to board. Some adhesives, which will join the sheets together, have no utility whatever in joining a sheet of paper. It is possible, however, in using the proper adhesive to join the moistureproof cellulose sheets to themselves or to paper or to board, or to waxed board. Incidentally, the moistureproof sheets are not hygroscopic and hence window boxes or envelopes made with them do not warp. They stay flat regardless of weather conditions.

Cellulose acetate sheets are very different, from an adhesive standpoint, from plain cellulose sheets. Different adhesives are needed, but satisfactory ones

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are available which give excellent results. Here again, however, when these sheets have moistureproof coatings, different adhesives are required.

Some other considerations that offer peculiar difficulties with adhesives for the moistureproof sheets are odor, color, and non-stringing characteristics. Satisfactory adhesive results with the moistureproof sheets are being obtained, however, in widely divergent industries and meanwhile constant research is producing better and better adhesives.

FACTORS TO CONSIDER IN ADHESIVE OPERATIONS

Adhesive operations are so diverse in modern packaging methods that there is no such thing as one best glue, any more than, for example, in industry, there is one best paint. There is probably one best kind of paint for any particular operation; similarly with adhesives. This article is concluded by listing the more important characteristics which users of adhesives must consider. For some operations one or several of these items are of prime importance; the "best" adhesive for any particular operation is that one with the best balance of all the factors necessary for that operation.

Chemical attraction (not repulsion) to the surfaces to be glued together. Without this essential, adhesion cannot be secured.

Initial tack is usually more important than quick set because if an adhesive has initial tack sufficient to hold a seal down at once and keep it down the time interval for ultimate setting is relatively unimportant.

Quick set is important where the package is subject to stress as soon as it leaves the gluing machine, as is often the case with fibre or corrugated shipping cases.

Property of being used without heat.

Freedom from odor is important with food or other products susceptible to odor absorption.

Non-stringing characteristics are particularly important on a reciprocating type of machine which carries glue from a roller over to the package. On "straight line gluing" as on carton-forming machines this is relatively less important.

Property of increasing the tackiness and hastening the set by application of heated plates to the glued joint.

Non-foaming characteristics are important details on high speed machines.

Proper viscosity. Various machine requirements run from adhesives as free flowing as water to heavy bodied pastes that will not flow at all.

Color on transparent wrappings is of paramount importance.

Flexibility is sometimes necessary, other times not.

Being neutral in chemical action is necessary to prevent discoloration of printed wrappers and labels, actual deterioration of wrappers or disintegration of metal containers. These conditions sometimes are only noticeable after a considerable time interval has elapsed.

Permanency of joint. Weather and climatic conditions vary greatly and tend to affect the strength of some joints. A good adhesive will perform its function and make a good bond regardless of such changes.

Waterproof qualities are sometimes very essential.

Keeping qualities. Proper adhesives do not deteriorate with age.

Cost. This last item, in the matter of adhesives, certainly belongs in the last place in any list. If packaging manufacturers paid twice the prevailing prices for adhesives, the cost of this item would still be very small as compared with other items of packaging expense. But an adhesive that fails to perform its function, slows up a production line or stops it altogether, lets packages open up on customers' shelves a thousand miles away and six months after shipment, or gradually discolors labels or corrodes tin cans would be a mighty expensive item to the packaging company if it paid nothing a gallon for it.

The manufacture of adhesives is an intricate business and the best policy for the owner or operator of modern, costly, high speed packaging machines is to state his particular problem in all its details to a reliable adhesive manufacturer who can be of real help to him out of his experience and who can supply him regularly, month in, month out, with suitable and uniform products.

WAXED PAPER

by Edgar A. Clark

THE invention and introduction some years ago of waxed paper into the field of food preservations, was as important and as revolutionary as the introduction of refrigeration. From very simple beginnings, waxed paper has developed into a complicated product. So that the character of the base papers and the kind of wax used are selected most carefully and scientifically to suit the exact requirements of the product to be packaged and the automatic machine that wraps it.

"To suit the automatic machine that wraps it" recalls to every wax man the big difficulties that the meeting of this requirement generated. It is not more than thirty years ago when the first machine

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for automatic wrapping of kisses was placed on the market, and at that time there was no waxed paper in kiss paper weight to meet the twisting test the machine exacted. From that time on, intensive laboratory work has developed waxed paper to run on automatic wrapping machines.

As wrapping machines were invented, similar paper studies were carried on and the machine requirements in the paper finally acquired. It was not only that the paper had to operate 100 per cent, but there was the proper wax content to consider, and the proper application of the wax. The reason for the extraordinary growth of waxed paper is not hard to find. Its appearance is good, excellent color, high gloss; it is waterproof and resistant to water vapor to a high degree.

Waxed papers are generally divided into three large classes. There are, of course, many subdivisions of these three classes; but for practical consideration these general classes are as follows:

Dry Waxed Sulphite: Impregnated with paraffine of a relatively low melting point. Carries little or no surface wax and is dry to the touch. Not entirely proof against water, vapor and air. Such a wrapper is a protection against contamination by handling or contact and, to a moderate degree, against changes in moisture content. Is not self-sealing on application of heat. Its use is indicated in many special instances.

Waxed Sulphite: A heavier coating of paraffine with correspondingly greater resistance to the passage of air and of water vapor. It is self-sealing on application of heat. Used as a wrapper for many products, but especially useful as a liner or divider in package goods.

Waxed Glassine: Heavily coated with paraffine of high melting point, skillfully applied, so that through the application of heat the coating will fuse at folds and openings to form a container which is, to a high degree, airproof, moistureproof, greaseproof, odorproof and insect-proof. Waxed glassines are made in an endless variety of grades, each one of which meets some special packaging need according to those qualities which are desired.

Waxed paper completely changed the bread industry, because it was found bread sealed in waxed paper could be baked in central bakeries and distributed "*oven fresh*" throughout large areas. Not that any wax paper would allow this, but the proper weight base stock and the correct amount of wax coating allowed the bread to breathe—for yeast in bread does not entirely stop acting after the bread is baked. In good bread there is a secondary yeast action which results in giving off certain gases and moisture content which, if confined, hastens the formation of mold and chemical reactions.

A properly made waxed paper permits the slow escape of light gases, retains the bread's flavor, its aroma, and keeps it many hours longer in a fresh condition. This characteristic is of great value—it duplicates nature, in that it has the properties of the natural outer coverings of some fruits. While it is possible to make a waxed paper resistant to moisture, the fact that paper can be waxed to allow moisture to pass through is a highly valuable property.

Waxed paper has been exceptionally valuable in the baking industry, it is also equally valuable in the confectionery, soap, florist, tobacco, medical and many other lines.

With the introduction of electric refrigeration, which is a dry cold, wax paper is more and more used to prevent loss of moisture due to the cold dry temperature of electric refrigeration. Electric refrigeration in conjunction with waxed paper gives nearly perfect preservation, also preventing flavor contamination from foods in the ice chest and excluding all injurious atmospheric influences.

The development of opaque waxed paper is the most important progression that has occurred in recent years and it deserves attention from all who package. Opaqueness has enhanced the advertising value of waxed paper and especially is this true when the paper has been coated with colored pigments and then waxed. Such papers have a definite purity of hue and brightness, and offer such a brilliant contrast to printed matter that they have become much in demand. Waxed paper is also made transparent when it is desirable that the printed matter on the container be clearly visible.

GENUINE VEGETABLE PARCHMENT

THERE are essentially two kinds of parchment, animal and vegetable. Animal parchment is the prepared skin of animals, usually sheep, and has been used for centuries chiefly for documentary purposes. Vegetable parchment, as the name would imply, is of vegetable origin and derives its name from its resemblance both in appearance and characteristics to the original animal parchment. Genuine vegetable parchment is a double process sheet, the first process being much the same as is employed in the manufacture of other papers except that no sizing or other foreign matters are added.

This first process results in a pure, soft, white, loosely formed web of pure cellulose fibre. It is then subjected to a chemical treatment which instantly changes the character of the product and produces a sheet that is odorless and tasteless, wet or dry; is highly resistant to penetration by fats or oils; snow white in color, and retains the strength and protec-

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tive quality even when thoroughly soaked with water. Genuine vegetable parchment may be boiled for hours in water without in any way harming the sheet, causing it to pulp, weaken or go to pieces. It is obvious that these unusual protective qualities make this sheet the ideal protection for any moist or oily food products.

One of the principal users of genuine vegetable parchment is the meat packer who uses this sheet for a variety of purposes in the protection of his various products. He finds the sheet ideal for the wrapping of fresh or smoked meats because, in addition to the above characteristics, it is attractive in appearance and permits the meat to breathe since it is not completely airproof. This sheet also serves as a highly satisfactory liner for fibre cartons containing lard and shortening since it prevents penetration by the product, is sufficiently strong, tough and pliable to avoid any breakage at the corners which might allow penetration and its color is ideal to show the product up to the best advantage.

Genuine vegetable parchment has been adopted as the standard protective wrapper for fresh and quick frozen fish fillets since the water does not destroy the wrapper and the sheet possesses the unusual characteristic of preventing transference of foreign odors or tastes to the product itself. When used on frozen fish, the sheet is usually coated on each side with pure paraffine to provide greater insulation value and to insure against any tendency of the paper to stick to the frozen product. A wrapper of other types of paper would quickly disintegrate and go to pieces, leaving no protection to the fish and leaving wet fibres of paper clinging to the product.

By crinkling this paper, an ideal barrel cover for the protection of meat or poultry packed in barrels is obtained. The crinkling adds considerably to the strength of the sheet and makes it possible to use as an auxiliary cover together with burlap. The moisture in the product will not, in any way, harm the cover of genuine vegetable parchment and no dirt can possibly get through to the product. This same crinkled sheet has been found ideal for the lining of boilers in which the packer cooks his ham, as such a liner possesses sufficient stretch to be free from any tendency to break as the meat is forced down into the boiler. It makes possible the cooking of the meat in its own juices, and, incidentally, such a method provides a more sanitary product, prolongs the life of the boiler and eliminates the labor necessary to scrub the boiler after each cooking operation. Crinkled parchment also serves as an excellent substitute for corn husks in the wrapping of tamales.

Moist, delicate and susceptible dairy products such as butter and ice cream are well protected by genuine vegetable parchment. Any other paper will immediately go to pieces in contact with the moisture in the product while genuine vegetable parchment retains its strength, protects against any absorption of foreign odor or taste, adds an attractive appearance and strips readily when the butter is to be used. Butter wrappers are usually subjected to the action of boiling water or boiling brine immediately before using to destroy any mold spores that may have alighted on the parchment while in storage before using, and no other paper will stand this treatment. Furthermore, genuine vegetable parchment is sufficiently transparent when wet to show the butter off to the best advantage but not sufficiently transparent to permit deterioration or rancidity from the direct action of the light. When used as a wrapper for ice cream, full protection is given the product together with the advantage of the maximum in attractive appearance even though the ice cream should become somewhat soft before it is unwrapped for use. Other types of paper will, of course, disintegrate quickly when the ice cream becomes soft and consequently cause considerable trouble by leaving wet shreds of paper on the product.

Genuine vegetable parchment is also used extensively as a gasket or cover on milk or cream cans. When used in this way, it prevents any spilling of the milk, keeps dust and dirt from sifting in and prolongs the life of the can by affording a gasket between the neck of the can and the cover itself. Some cities have gone so far as to pass ordinances insisting that such protection be provided for any milk or cream coming into the city in metal cans.

Another extensive field for the use of genuine vegetable parchment is the vegetable industry in which it is required that a wrapper or a crate liner will stand up even when wet and continue to afford perfect protection and attractive appearance when thoroughly soaked with water.

Genuine vegetable parchment can be printed with colorful designs, using special inks made up particularly for this purpose. These inks are thoroughly tested in laboratories to make sure that they are entirely suitable to be used on wrappers coming in direct contact with the food products in question. Manufacturers of parchment maintain special research departments to work out packaging problems for their customers. Genuine vegetable parchment is not moistureproof, is not airproof but represents the perfect protection for any product in which an excess of oils, fats or moisture is present.

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GLASSINE PAPERS

by F. Lloyd Triggs

THE last two years have brought revolutionary changes in the field of glassine papers. New processes have produced natural glassines of great transparency and have given to all glassines a new property of soft, pliable strength. Inasmuch as the average glassine mill and waxing plant produces well over a hundred varying grades of paper, it is simpler to treat glassine from the standpoint of general use.

From this angle most glassine papers fall in four groups: outer wraps, carton liners, bag stocks and special industrial glassines. While varying greatly in appearance, the glassines found in each group possess the common characteristics of high grease resistance, cleanliness and low cost. When waxed, all glassines become decidedly moisture-proof and self-sealing through the application of heat. As data on the uses and physical qualities of waxed glassines are covered elsewhere in the PACKAGING CATALOG they are omitted from specific discussion in this article.

In the first division—outer glassine wraps—a high degree of transparency is usually found. The papers in this group are known in the trade as "Super-transparent Bleached Glassines." They are designed to work rapidly on packaging machinery, to print with facility on ordinary presses and to provide a neat, tight seal with ordinary adhesives. As a carton wrap, this group of glassines offers approximately 90 per cent of full transparency.

Although this field for unwaxed glassine has declined in volume recently due to the advent of transparent cellulose, lost tonnage has been more than replaced by the increased use of waxed super-transparent glassine in the baking industry, and by greater use of waxed glassine carton liners to replace waxed papers offering less moisture-protection.

From the standpoint of volume and variety of grades, the second division—carton lining glassine—is of greatest importance. In this group are found both bleached and unbleached glassines, the latter tending toward a light gray or an amber color. While transparency is of little importance, grease and air resistance are kept at a high point and the moisture-proof quality of the waxed liners is particularly developed. Many manufacturers have found it economical to have special glassine liners developed to meet the specific needs of their product and packaging machinery. Aside from these individually produced glassines, the unbleached grades find general use in cracker cartons, coffee bags and in lamination with box-board. The bleached liners are used for cereal, prepared flour, cocoanut, gelatin, candy and an endless number of other products requiring a sift-proof, sanitary, grease-proof or moisture-proof (if waxed) liner of low cost.

In the bag and envelope industries two general types of bleached glassine are prevalent. These are known as "Super-transparent Bleached Glassine" and as "No. 2 Bleached Bag Glassine." In the manufacture of bag glassines, special attention is given to strength and pliability, while transparency varies with the cost of the grade used. The baking industry is perhaps the largest user of glassine bags but the number of other products so packaged—potato chips, grated cheese, collars, novelties, etc.—is legion. Present day bag machinery has kept pace with the rapid developments of the lining and wrapping machine manufacturers and many types of glassine bags can now be made at a speed of 700 per minute. Bag glassines are made to print well with both oil and aniline inks, and the printing of these bags is normally a part of the manufacturing process. By a process of waxing on one side with a dry strip for gluing, a moisture-proof bag is produced. Two lightweight glassines, laminated together with wax, form a special bag paper used where exceptional moisture-protection is required.

The fourth division—Industrial Glassines—must be adopted to cover a multitude of little known but widely used special papers. The pharmaceutical field uses as a bottle wrap a special transparent glassine with a high resistance to breakage when twisted. Ball bearings are wrapped in a special heavyweight amber glassine. Ticker tape projection devices use narrow rolls of a ready-printing transparent glassine. Very lightweight bleached and unbleached glassines are made with a high dielectric test for condensers. The manufacture of such special types has become so routine with the glassine mills today that new paper problems are solved with a minimum of time for research and under a guarantee of satisfactory performance.

Many of the papers mentioned above are prepared in special colors and with embossed designs. The colored glassines make economical and attractive candy cups, and in the past year pads of colored corrugated glassine have reduced breakage and added to the appearance of many packages. In commenting on these special industrial glassines, mention should be made of progress in perfecting a lacquer-coated glassine of high shine and perfect transparency. A number of papers of this type have been brought on the market during 1933 and are being used on a small scale commercially while further research and experimentation are continued. A lacquer-coated glassine should be highly trans-

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parent, odorless, heat-sealing, glossy, moisture-proof, greaseproof, readily printable and of moderate cost. It is quite possible that 1934 will record the perfection of such a sheet despite the many qualities that must be combined therein.

It is obviously difficult to treat with such a complex group of papers in a few paragraphs. The glassine mills, however, are located at central points throughout the country and employ large laboratory staffs, available without charge to package designers or manufacturers. Technical information or packaging recommendations relating to lining, wrapping, sealing or any special problems of a similar nature may be obtained from them.

TRANSPARENT CELLULOSE WRAPPING MATERIALS

by Harold A. Levey

ONE of science's outstanding contributions to the art of wrapping is the completely transparent cellulose sheeting available to the present market. While all of us can recall seeing thin gelatin sheeting on packages as far back as we can remember, it was only until a year or so before the World War that we saw a completely transparent form of cellulose sheeting. The nature of the demand for the transparent wrapping fairly parallels that of the glass container in accordance with such phrases as "See what you are buying." However, it offers decorative possibilities not within the scope of the glass container. Its adaptability, due to its extremely flexible nature, makes this possible. Its capacity to be colored, embossed, printed upon and satisfactorily bonded together, substantially augments its other properties.

The first type of transparent cellulose sheeting which met with ready acceptance as a general wrapping was composed of viscose or regenerated cellulose.[1,2] This material is completely transparent and colorless, is slightly hygroscopic, neither water- nor moisture-proof, non-inflammable (but burns), grease- and oil-proof, and is the lowest priced completely transparent sheeting obtainable on today's market. It is affected to a degree by differences in atmospheric conditions, more particularly humidity changes. It can be obtained in colors and embossed designs. The non-moisture-proof form is not used as a food wrapping in direct contact with food products possessing a high moisture content. Its most extensive application is that of an outer wrapping for nearly every type of commodity of such size as can be readily enclosed within its standard size of sheet dimensions, and the price and profit margin of the article permitting its use. Its relatively low price, together with its ease of sealing and workability in automatic equipment, has extended its use to almost limitless fields.

A relatively new type of sheeting which has recently found its place on the American market as a general wrapping is that which is composed of cellulose acetate.[3,4,5] This material is inherently water-proof, and oil- and grease-proof. It possesses an unusually high degree of clarity, brilliancy and surface sheen. It is practically unaffected by atmospheric conditions and humidity changes. It is not attacked by insects nor mold, can be obtained in colors, is readily printed upon and embossed, as well as quickly cemented. Its properties can be so varied that the same material can be made into sheeting which has striking rigidity, or can be prepared so that it possesses the flexibility of rubber sheeting. Its moisture transmission values can be controlled within definite limits, so that it may be readily applied to almost any type of wrapping, including direct contact with the food products which it encloses. As it is not affected by humidity changes, it is effectively used as a covering for the windows of envelopes and window cartons.

In order to overcome some of the shortcomings of the viscose or regenerated cellulose sheeting, more particularly to render it moisture-proof, this type of cellulose sheeting is coated with a thin film formed from a nitro-cellulose lacquer containing resins, plasticizers and waxes.[6,7] The resulting sheet is essentially moisture-, oil- and grease-proof, of greater strength and increased inflammability. While it is not completely water-proof, it is highly resistant to the transmission or penetration of moisture. This treatment reduces its sensitiveness to humidity changes and increases its resistance to the attack of insects and the growth of mold.

Because of the moisture resistance offered by this coating, this type of sheeting is invariably used where the wrapping must come into direct contact with the food products, and especially when it is desired that the original moisture content in that food or similar commodity be retained for a fairly long time. This applies particularly to such ma-

[1] Cellophane; Du Pont Cellophane Company, New York.
[2] Sylphrap; Sylvania Industrial Corporation, New York.
[3] Inceloid; American Products Manufacturing Company, New Orleans, La.
[4] Protectoid; Celluloid Corporation, Newark, N. J.
[5] Kodapak; Eastman Kodak Company, Rochester, N. Y.
[6] Moisture-proof Cellophane; Du Pont Cellophane Company, New York.
[7] Moisture-proof Sylphrap; Sylvania Industrial Corporation, New York.

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terial as confections, baked foods and tobacco products, whose moisture content must not be lost; while crackers and related materials must not take up moisture. Even though this type of sheeting costs over one-third more than the uncoated sheet, the volume used of this coated sheeting is about three times that of the uncoated sheet. Obviously, its resistance to moisture, as well as its ability to maintain the moisture content of wrapped materials in almost the same state as when they left the manufacturer, appears to more than offset its increased cost.

All of the above types of sheeting are practically odorless and tasteless, and can be formed into an almost gas-tight enclosure, one of these[7] possessing sufficient thermoplastic properties to make a satisfactory "heat seal" to bond sheet to sheet by the application of a moderate amount of heat and pressure. This property enables these types of sheetings to form a package which will retain nearly all of the original odor and flavor of the contained materials.

Papers have not yet been prepared in any modified or treated form which has resulted in a sheet that could be considered completely transparent, that is a transparency comparable with that of water, or of glass, or which when held up to the light would not diffuse the light source. As a result these types of papers appear in varying degrees of translucency. Properties and uses of the various types of wet and dry waxed paper, glassines, waxed glassines, vegetable parchments and the like are of course already well known to the packaging industry. There are, however, types of resin-treated papers[8,9] which have an unusually high degree of translucency approaching transparency. They have good moisture transmission resistance, and are practically oil- and grease-proof for the limited period of time for which they are used as a food wrapping. Like all treated papers, as well as all the other sheeting mentioned in this article, these last-named products are air-tight and dust-tight. They are immune from insects and mold growths. Their inflammability is slightly greater than that of the untreated paper. The cost of this form is intermediate between that of a good grade of waxed glassine and regular viscose sheeting.

Modern trends have been decidedly in the direction of the completely transparent wrapping, and of these there is a preponderance of favor toward the moisture-proofed types, notwithstanding their substantial increase in cost. These situations indicate clearly that the desideratum is to make the wrapped object completely visible as well as to reach the consumer in practically the same condition as when it left the manufacturer. Such conditions demand a form of sheeting, which shall itself be invisible and at the same time possess a high order of protective value. It must include such properties as water-, oil- and grease-proofness, and dust- and air-proofness, a high resistance to moisture transmission, good tensile strength and flexure value, together with a retention of these properties over a substantial period of time. It must be available in colors, capable of being readily printed upon and embossed, easily and quickly cemented, as well as being readily adapted for machine operation.

While the moisture-proof viscose sheetings have, in general, most of these desirable properties, they have, however, many shortcomings. They are a laminated composite sheet, the surface coating which renders them moisture-proof having a thickness of only .0001 in. While moisture transmission resistant, these sheetings are not completely water-proof. On immersion, or sufficiently long contact with water, the thin protective coating can be detached.

Probably the ultimate line of development will consist of a homogeneous sheet made from a base of cellulose acetate, or some similar derivative of cellulose, properly modified or treated to render it moisture transmission resistant. Cellulose acetate and related derivatives are inherently water-proof, and when their moisture transmission is improved (as the resulting sheet is homogeneous throughout), and not subject to humidity changes, there will be no formation of crinkles, etc. This formation is particularly noticeable when both the coated and uncoated viscose sheetings are used as window coverings for cartons and the like. The cellulose derivative type of sheeting in addition to possessing a high degree of transparency, even to ultra-violet light, is very slow burning. Stability and longevity, freedom from discoloration, and resistance to the disintegrating effects of the elements are properties of substantial worth possessed by the cellulose derivative types of sheeting. The cost must be low, in order that it may be used to wrap even the lowest priced articles. However, this usually results when a large market prevails.

Transparent sheeting has become the most accepted type. It is always associated with quality products and low-priced commodities invariably give publicity to the fact that they are enclosed in a transparent wrapper, thus using this feature as a selling point.

Relief effects are now obtained by embossing and printing which in many cases have eliminated at least one wrapping and resulted in a package of more attractive design and greater utility. Owing to the complete transparency of this sheeting, only the printing is visible and appears to be a part of the object wrapped.

Gummed transparent sheeting is now available, both clear and in colors. It can also be supplied printed upon and embossed. Printed and cut-to-shape seals and closures are now fabricated which

[8] S. W. Weis, 182 No. La Salle St., Chicago, Ill.
[9] Transpara; Transpara Paper Company, Rhinelander, Wis.

effectively serve the purpose of sealing and labeling or marking such packages. It also designates the strategic point at which the wrapping might be most readily opened. The clear and colored transparent gummed tape is used in many manually wrapped packages as a time saver and results in a more striking wrapping. The clear transparent gummed tape is by far the best product for making an invisible repair on torn paper or fabric.

As transparent sheeting possesses unusual strength for its thickness, the sealing of packages so wrapped and sealed can be opened only with difficulty. To overcome this situation some manufacturers leave a part of one flap turned up at the closure. Others enclose a small strip or narrow ribbon of a thicker variety of the sheeting in another color which projects out at the joint in the wrapping. By pulling on this strip the end of the wrapping is as readily removed as the opening of an envelope or package by the pulling of an enclosed thread.

As binding tape, transparent cellulose sheeting finds use when folded into a tube with lapped joint and then pressed flat. It may be obtained in clear or in colors as well as with an inserted core of other materials as metallic foils and paper or fabric containing printed matter.

GLAZED AND FANCY PAPERS

THE following definitions apply to the various types and kinds of glazed and fancy papers and to various terms used in connection with their sale and use.

Bodystock: The kind of paper, such as rag, sulphite, kraft and ground wood, which is coated, embossed, etc.

Brush Finished: Papers which after calendering are further polished in a machine which thoroughly brushes the surface.

Cloth-lined: Paper and cloth pasted and pressed together into a single sheet of material. Used for paper collars, envelopes, tags, children's books, etc.

Coated, Fancy: Papers with fancy effects produced upon the coating machine instead of by printing or embossing. This is done by many means, such as spraying, spattering, mottling, felt blocks, moving brushes, etc. There may be one or several colors used and the finished paper may have a regular design or it may consist of a fancy effect without a design which repeats itself.

Embossed, Heat: Papers to whose coated surface has been applied a heated roller with a design, the raised portions of which, coming in contact with the coated surface, cause a change in the shade of color.

Embossed, Friction: Papers which have a pattern pressed into them. The raised portion usually appears on the front surface.

Embossed, Print: An embossed paper which has ink in the embossing pattern.

Embossing Designs—Common: There are around 100 embossing designs commonly used, such as basket, skytogen, etc.

Embossing Designs—Exclusive: There are several hundred different embossing designs, in addition to the common ones, which have been originated or purchased by individual manufacturers who thereby own these designs exclusively. Such designs are frequently protected by registration at the United States Patent Office. Most manufacturers do not desire to copy others' designs, preferring to have exclusive designs of their own. The Glazed and Fancy Paper Manufacturers' Association, 280 Main St., Fitchburg, Mass., maintains a registration bureau of these designs for the protection of its members and to answer inquiries from customers and users. They are glad to tell users where a particular design may be obtained.

Fabric Designs: Printed designs, in imitation of various fabrics, commonly known as "fabric prints." Embossing design in imitation of fabrics such as rep, linen, etc.

Flint: A coated paper, white or colored, finished by rubbing with flint stones, thereby producing a very shiny surface.

Flock: Papers coated with flock which is finely powdered wool, cotton or silk are called velour or suede and are differentiated by prefixing the name of the kind of flock used, such as cotton velour, silk velour or wool velour.

Friction Glazed: Coated papers that are finished in a friction calender which produces a highly polished surface as a result of the rotary action of a steel roller.

Gold Papers: Coated with metallic substances which look like gold.

Holly: Papers with a printed or embossed holly design.

Intaglio Printed: Papers printed with the intaglio printing roller which has the pattern cut into the roller and transfers the ink from these depressed places to form the printed pattern on the paper. The amount of ink transferred is controlled by the depth of the cut-in portion on the roller; in this way some parts of the pattern have more or less ink and thereby produce the printed pattern in varying shades of the same color. This cannot be done with a surface printing or wall paper machine. According to Webster this word is pronounced in-tal'-yo, the "tal" as in "tallow."

Leather Grain: Papers with leather grain designs which are either produced by printing or embossing.

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Common examples are alligator, Persian lamb, etc.

Marble Agate: Papers with a design imitating polished colored marble. The design is sometimes a printed design but true marble agate papers are made by floating coloring materials on a viscous bath. Usually a small quantity of an extract made from ox liver is mixed with the colors in order to facilitate their distribution. The design is then created by combining the colors on the surface of this bath with a wooden comb or the fingers. After the pattern has been made on this bath the floating materials are transferred by contact to the paper.

Metallics: Papers coated or covered with such metals and in such a manner as to give the luster of metals. Bronze powder and aluminum powder are used chiefly for metallic papers made by the coating process; pyroxylin mixtures are also used to make metallic coated papers. *Half Fine Metallic* papers are produced by laying patches about five inches square of a thin copper or aluminum alloy on paper which has been coated with an adhesive. The patches are allowed to overlap so as to form a continuous metallic surface and the overlapping edges are brushed to remove any surplus. *Foil* papers are produced by the application to paper of a continuous sheet of metallic foil, usually tin foil, zinc or their alloys. The foil is adhered to the paper by the use of some adhesive. These are the real foil papers; imitation foil papers are made by coating processes as defined under the term tinfoil.

Mica: Papers whose coating material includes small particles of mica which give a sparkling appearance.

Moiré: The name of a large class of embossing patterns which, after the manner of textiles of the same name, give a mottled or watered appearance.

Multi-Color: Papers coated, or originally made, with many colors mottled or blended into a fancy effect.

Non-fading: Papers that resist fading when exposed to sunlight. Some colors fade more than others.

Pastel: Subdued color shades.

Pearl: The well-known and very beautiful mother-of-pearl paper. The paper is coated by a special process with certain salts and then so treated that a crystallization process occurs which develops the mother-of-pearl design. This is a French manufacturer's product. American companies produce the same results with pyroxylin.

Plate: Coated papers finished in a stack calender which produces a dull finish by means of pressure.

Printing Designs: Some designs are common designs, that is, common to the industry and obtainable from many different manufacturers. Other designs have been created or purchased by one manufacturer only, and frequently registered by them in the United States Patent Office. These are called exclusive designs. The office of the Glazed and Fancy Paper Manufacturers' Association maintains a file of members' samples for use in answering inquiries as to the source of any desired printed design.

Pyroxylin Coated: Papers coated with pyroxylin solution.

Ream: 500 sheets is commonly used instead of the 480 which we learned in school. The standard size is 20 in. × 26 in. because these papers are most frequently sold in 26 in. rolls.

Rolls: A roll usually contains from three to four reams of the lighter weight papers, 17 lbs. to 25 lbs., heavier papers having fewer reams per roll.

Sateen: Another name for mica papers.

Skytogen: A large class of embossing designs consisting of many small raised portions in no particular pattern. They are supposed to represent the background formed by a cloudless sky.

Silver: Papers coated with metallic substances which look like silver, sometimes called aluminum argentine or platinum papers.

Suede: Another name for velour or flock paper.

Surface Printed: A fancy paper on which a pattern in colors has been printed by direct transfer of ink from raised portions of printing rollers.

Swirl: Designs, both printed and embossed, which consist largely of circular lines.

Tarnishing: Discoloration of metallic papers caused by chemical action from contact or vapors.

Tinfoil: A paper coated on one or both sides to imitate tinfoil.

Tissues, Fancy: Tissue paper upon which has been printed a fancy design. Frequently, it is embossed with another design. Largely used for envelope linings.

Trade Mark Designs: Trade marks printed or embossed on the paper.

Velours: Another name for flock papers. Sometimes the term "velour" is applied to imitation leather papers.

Water-proof: Papers whose coating material includes such ingredients that the surface becomes to a large extent non-absorbent of water.

Weight: The weight per ream on a basis of 500 sheets, 20 in. × 24 in., of the bodystock.

Wood Grain: Printed papers with designs imitating various wood grains.

Considerable delay is caused by customers sending in an order for a certain number of reams of a certain color. Such an order does not state what size ream they desire, what kind of paper is wanted for a bodystock or what kind of finish is needed. Orders for paper should state the quantity; whether in rolls or sheets; size of rolls or sheets; manufacturer's sample number if possible; otherwise full details regarding the color, finish, and bodystock. There are many shades of most colors, hence, to say that a red is desired is not specific enough. A sample of the paper desired covers the need if the sample is large enough; this sample should be $8\frac{1}{2}$ in. × 11 in. if possible; a sample $\frac{1}{2}$ in. × 3 in. is so small that the weight of the bodystock cannot be determined.

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METAL FOIL IN PACKAGING

by M. S. Treys

METAL FOIL brings to the packaged product two powerful merchandising advantages: display value and protection.

Display Value—The value of foil for decorative and display purposes lies in its highly polished and permanently brilliant real metal surface. No color or combination of colors can equal the flash of sparkling silver or gold foil for power to *attract* and *hold* the human eye. Foil wrapped packages stand out on counter or shelf.

Protection—A long list of perishable and semi-perishable articles have for many years found foil indispensable for protecting and preserving their original quality and freshness. Butter, candy, cheese, chewing gum, chocolate, cigarettes, meat loaf, sausage, soap, tobacco and yeast, are some of the products that have employed foil year after year, and secured excellent protection. Foil, being made of real sheet metal, is the most perfect protection against the influences that spoil product quality, flavor or freshness. Aluminum foil is light-proof, guarding all products containing oils or fats against the action of rancidity which is accelerated by light. Further, it is an excellent insulating material, possessing the power to reflect 95 per cent of all radiated heat (foil is now manufactured in a form suitable for application as an insulation in home and industrial construction). In addition to its powers to stop heat and light, foil is moisture-proof, grease-proof and odor-free.

TYPES OF PLAIN FOIL

Foil is made from (*a*) pure tin; (*b*) aluminum; (*c*) composition of tin and lead. Each foil packaged product uses one of these three types, depending upon the nature and form of the material packaged. Foil manufacturers, aided by their experience in meeting the requirements of many products, are always ready to consult with prospective users of foil and recommend a grade best suited to the purpose in view.

TYPES OF PAPER BACKED FOIL

Much useful progress has been made in the development of various combinations of foil with other materials. It is now satisfactorily combined with waxed papers, parchment, glassine, bond papers, manila papers, etc., by means of glue mounting, glue-line mounting, wax mounting and asphalt mounting. By this means paper materials are reinforced and the advantages of foil display or protection added. For example, parchment backed foil is used for lining tea cartons, and as a wrapping for butter and cheese. Meat loaf is packaged in foil backed with waxed paper.

Among the new developments in foil is the combination of it with paper to form a stock suitable for labels and box-wraps. The foil is firmly bonded to the paper, and is in this form practical for many unusual printed and embossed effects. Used in this form as an inside protection with the paper on the outside and tightly sealed, foil is doing an excellent protective job as a tight wrap.

Another development is a foil lining for paper cans and canisters. The paper backing of the foil is adhered to the inside of the paper can, thus forming a combination metal-paper container which can be used for many oily and greasy products for which a paper can was previously impractical.

Along similar lines foil-lined and foil-surfaced cartons have been developed. The foil is bonded to

THE COMMON USES AND GRADES OF FOIL

Commodity	Backing	Adhesive
Box covers	Soft paper	Solid glue
Chocolate bars	No backing	....
Chewing gum	Waxed paper	Wax
Candy bars	Waxed paper	Wax
Candy mints	None (plain foil)	....
Cartons	Paper board	Asphalt or glue
Tea	With and without paper	....
Cakes	Waxed paper	Wax
Cheese	Plain or transparent paper backed	If paper backed, wax or cement
Yeast	None (plain foil)	....
Ice cream bars	Waxed paper	Wax
Cut tobacco	Waxed paper	Wax
Cigarettes	Bond paper	Glue lined
Box covers	Bond paper	Asphalt or colorless adhesive
Box liners	Plain or paper-backed	If paper backed, glue lined
Soap	Waxed paper	Wax
Photo films	Waxed paper	Wax
Corsage stems	None (plain foil)	....
Bottlenecks	Tissue paper, if any	Cement, if tissue paper backed
Bottlecap liners	Plain or paper backed	If paper backed, colorless cement
Window decoration	Plain or paper backed	If paper backed, asphalt or glue
Butter wrappers	Paper	Cement
Meat wrappers	Waxed paper	Wax
Gift wrappers	Bond paper	Asphalt
Typewriter ribbons	Wax paper	Wax
Bonbon cups	None (plain foil)	....
Labels	Bond paper	Colorless cement
Vanity boxes	None (plain foil)	....
Milk bottle caps	None (plain foil)	....
Frozen food packages	Bond paper	Asphalt
Chocolate buds	None (plain foil)	....
Insert for transparent wrapper	Wax paper	Wax
Liners or covering for paper cans	Plain or paper backed	If paper backed, usually asphalt

boxboard of suitable gauge and fashioned into folding cartons of unusual beauty and display value.

PRINTING ON FOIL

Foil in its various forms may be color-printed by any of the standard processes: letter-press, lithography, intaglio or rotogravure. It is not to be handled the same as paper, since its real metal surface is non-absorbing. Surface drying inks are used; these are obtainable from any of the better ink manufacturers. Printers who are unaccustomed to this style of printing, or who are undertaking their first foil printing jobs, will find the foil manufacturers willing and eager to advise or cooperate with them in solving any problems with which they may be confronted. Foil, being a pliable metal, embosses or debosses handsomely through the use of the customary dies and processes, and in such forms can be used in different types of packages.

Foil is obtainable in shiny or satin silver and gold; also in a wide range of colors, printed and embossed designs, plain or lacquered finish. It can be purchased in sheets, or continuous rolls for automatic packaging equipment.

DEFINITIONS AND RULES FOR FIGURING BOXBOARD

THE following definitions, rules and tables for figuring boxboard supplement the information as given above under the heading of "Nomenclature of Set-up and Folding Boxboard" and also referred to elsewhere in the PACKAGING CATALOG.

Bundle: A bundle of boxboard is a standard package of same weighing 50 lbs. The weight of a bundle does not vary.

Number: The "number" of board indicates the number of sheets, size 26 x 38 in., in a bundle weighing 50 lbs.

Count: By "count" is meant the number of sheets of any size in a bundle of 50 lbs.

Regular Size: The regular or standard size of all grades of board, except patent coated and solid manila, adopted for the United States, is 26 x 38 in., containing 988 sq. in. The regular or standard size of patent coated and solid manila board is 24 x 36 in., containing 864 sq. in.

Regular Number: The regular number indicates the number of sheets, 26 x 38 in. in size, in a bundle of 50 lbs.

To Determine Count of Odd Size Sheets: If not sure of the regular number of the board desired, determine same by gauge list. Divide the number of square inches in a bundle of the regular number desired, by the square inches in the special size sheet desired, and the result is the "count" or "number" of the special size desired.

To Determine Regular Number of Any Special Size: Knowing the count of the special size, multiply the square inches in special size sheet by the count, the result being the square inches in the bundle. Divide the square inches of the special size by the square inches in a regular sheet (26 x 38 = 988), and the result is the "regular number."

Basis of Gauge Lists: The size referred to in all the gauge lists, except patent coated and manila boards, is the regular size 26 x 38, containing 50 lbs. to the bundle. The gauge list and ream weights of patent coated and manila boards are based on the ream, 24 x 36, 500 sheets.

GAUGE LIST NO. 1 FOR PLAIN STRAW AND PLAIN CHIPBOARDS

Solid jute, dry finish; filled wood pulp; filled newsboard, single news vat lined chip and single white vat lined chip.

Basis 26 x 38 in.	No. 1 Finish Thick to No. 2 and Rough	No. 2 Finish Medium	No. 3 Finish Thin to No. 4 and Smooth	No. 4 Finish Extra Smooth
No. 35	0.064	0.060	0.057	0.051
" 40	.056	.053	.050	.045
" 45	.050	.047	.045	.040
" 50	.045	.042	.040	.036
" 55	.041	.038	.036	.033
" 60	.038	.035	.033	.030
" 65	.035	.032	.030	.028
" 70	.032	.030	.028	.026
" 75	.030	.028	.027	.024
" 80	.028	.026	.025	.023
" 85	.026	.024	.023	.022
" 90	.025	.023	.022	.020
" 95	.024	.022	.021	.019
" 100	.022	.020	.019	.018
" 110	.020	.019	.018	.017
" 120	.018	.017	.016	.015
" 130	.017	.016	.015	.014
" 140	.016	.015	.014	.013
" 150	.015	.014	.013	.012

GAUGE LIST NO. 2

For cracker shellboard; plain shellboard, colored one side, colored boxboard, chip back; colored boxboard, chip center; news back; any combination board with solid news back; any combination board with solid wood back. Single manila lined chip; single manila lined chip center, news back; bleached manila lined chip; bleached manila lined chip center, news back; double manila lined chip and manila colored shell; colored suit boxboard, chip back; colored suit boxboard chip center, news back; mist colored suit boxboard, chip back; mist colored suit boxboard, chip center, news back. Test jute; test chipboard; jute lined chipboard; jute lined chipboard, news back; imitation jute; filled jute (chip center); solid jute (bending).

Basis 26 x 38 in.	No. 1 Finish Thick to No. 2 and Rough	No. 2 Finish Medium	No. 3 Finish Thin to No. 4 and Smooth	No. 4 Finish Extra Smooth
No. 40	0.050	0.047	0.045	0.043
" 45	.045	.043	.041	.038

Basis 26 x 38 in.	No. 1 Finish Thick to No. 2 and Rough	No. 2 Finish Medium	No. 3 Finish Thin to No. 4 and Smooth	No. 4 Finish Extra Smooth
" 50	.040	.038	.036	.034
" 55	.037	.035	.033	.031
" 60	.034	.032	.030	.028
" 65	.031	.030	.028	.026
" 70	.029	.028	.026	.024
" 75	.027	.026	.024	.023
" 80	.025	.024	.023	.021
" 85	.024	.023	.022	.020
" 90	.023	.022	.020	.019
" 95	.022	.020	.019	.018
" 100	.020	.019	.018	.017
" 105	.019	.018	.017	.016
" 110	.018	.017	.016	.015
" 120	.017	.016	.015	.014
" 130	.016	.015	.014	.013
" 140	.015	.014	.013	.012
" 150	.014	.013	.012	.011

GAUGE LIST NO. 4

For pasted chipboard

Basis 26 x 38 in.	No. 1 Finish Medium	No. 2 Finish Thin to No. 3 and Smooth	No. 3 Finish Extra Smooth
No. 10	0.212	0.200	0.180
" 15	.142	.133	.120
" 18	.113	.111	.100
" 20	.106	.100	.090
" 22	.096	.090	.082
" 25	.085	.080	.072
" 28	.076	.071	.064
" 30	.070	.067	.060
" 35	.060	.057	.051

GAUGE LIST NO. 3

For solid news and solid wood pulp board

Basis 26 x 38 in.	No. 1 Finish Thick to No. 2 and Rough	No. 2 Finish Medium	No. 3 Finish Thin to No. 4 and Smooth	No. 4 Finish Extra Smooth
No. 40	0.063	0.060	0.055	0.050
" 45	.056	.054	.050	.045
" 50	.050	.048	.044	.040
" 55	.046	.044	.040	.036
" 60	.042	.040	.037	.033
" 65	.039	.037	.034	.031
" 70	.036	.034	.031	.029
" 75	.033	.032	.029	.027
" 80	.031	.030	.027	.025
" 85	.029	.028	.026	.023

Basis 26 x 38 in.	No. 1 Finish Thick to No. 2 and Rough	No. 2 Finish Medium	No. 3 Finish Thin to No. 4 and Smooth	No. 4 Finish Extra Smooth
" 90	.028	.026	.024	.022
" 95	.026	.025	.023	.021
" 100	.025	.024	.022	.020
" 110	.022	.021	.020	.019
" 120	.021	.020	.019	.018
" 130	.020	.019	.018	.017
" 140	.019	.018	.017	.016
" 150	.018	.017	.016	.015

GAUGE LIST NO. 5

Container board

Basis 26 x 38 in.	No. 3 Finish	Test
No. 15	0.120	300 lbs.
" 28	.100	275 "
" 23	.080	200 "
" 29	.060	175 "

Furnished in 2, 3 or 4 ply pasted and conforms to railway and express requirements.

GAUGE LIST NO. 6 AND REAM WEIGHT TABLE

For patent coated, chip back; patent coated, news back; patent coated, news center, manila back; patent coated, solid manila back; patent coated, blue back; solid manila board.

Caliper Thickness	Basis 500 Sheets 24 x 36 (864 sq. in.)	Basis 500 Sheets 25 x 40 (1,000 sq. in.)
0.011	154 lbs.	178 lbs.
.012	168 "	194 "
.013	182 "	210.60 "
.014	189 "	217.60 "
.015	195 "	225.69 "
.016	208 "	240.70 "
.017	221 "	255.78 "
.018	230 "	266.20 "
.019	238 "	274.88 "
.020	245 "	283.56 "
.021	252 "	291.66 "
.022	264 "	305.55 "
.023	276 "	319.44 "
.024	288 "	333.33 "
.025	300 "	347.21 "
.026	312 "	361.10 "
.027	324 "	374.99 "
.028	336 "	388.88 "
.029	348 "	402.77 "
.030	360 "	416.65 "

Furnished wrapped in reams or half-ream bundles.

NOMENCLATURE OF SET-UP AND FOLDING BOXBOARD

BOXBOARD as used in the commercial lines is divided into two classes: set-up boxboard and folding boxboard. Both products are manufactured on the same machine, the difference being that created by the raw materials used in each in the process of manufacture. Briefly the two products may be described as follows:

Set-up Boxboard. The commonest form of set-up boxboard is known as chipboard. Next in quality is newsboard. These are the two basic boards for practically all ordinary set-up box work. Chipboard is made from mixed papers commonly known as paper stock. Solid newsboard is made from newspapers and is therefore a cleaner and more uniform product. Newsboard is also made with a chip center, but to outward appearances it is still newsboard.

These boards are packed in 50-lb. bundles, and the thickness of each sheet is dependent upon the number of sheets in the bundle. However, both chipboard and newsboard may be ordered in various finishes; for instance, both products are sold in a dry finish and water finish, the dry finish meaning the

surfaces are free from a high finish, and the thicknesses are termed rough, medium or two-dry and three-dry. In the water finish they run 2, 3 and 4. The two-water finish is not necessarily a smooth board; the three-water finish is considerably smoother, and the four-water finish is about the smoothest that chip or newsboard is made.

Folding Boxboards may be classified as follows:

Bending chipboard is made of mixed papers, but the two surfaces contain fibrous products, such as manila clippings, jute liners and old corrugated boxes. This is the commonest form of bending board.

Next is single manila, which is either a chip or a newsboard with a percentage of unbleached sulphite on one surface, thus making this surface a cream color bending board. Next comes bleach manila with either chip or news back, the surface being made from soft white shavings and bleach sulphite stock. The sulphite produces the bending quality.

Patent coated is produced with a news back, the surface being made from hard white shavings and bleach sulphite. This board is used for higher grade folding boxes, either printed or lithographed.

Folding boxboards are made on a water finish, and are produced on a basis of from 1800 to 2200 points per bundle, according to the finish required. In the very common grades of folding boxboard for suit boxes and shipping containers, there is the mist board which is practically a single manila lined finish, except for the mist colors, which can be made according to specifications.

There is jute lined board, which might have a chip back and the brown surface is produced from the use of boiled wood, and finally container board, which runs 60-, 80- and 100-points. This board is a chip center with a 16-point jute liner pasted on either side

FOLDING CARTONS AND CONTAINERS

by Willard F. Deveneau

WHILE rapid strides have been made in all kinds of packages, the development of the folding carton from an inexpensive and ofttimes cheap-looking container to a real place in the field of self-selling packages is significant. The roll call of manufacturers utilizing folding cartons today is almost as wide as industry itself, varying from the makers of penny goods to those making products costing American consumers $1.50 or better, or in terms of the products themselves from absorbent cotton to waffle irons, and from microscopic lenses to the loveliest of cosmetics.

The major advantages claimed for folding cartons are:

1. Minimum of original package costs.
2. Ease of handling and shipping.
3. Economy of storage-space and warehousing expense.
4. Suitability for large or small production, and manual or machine-filling operations.
5. Ready adaptability to a large number of products, varying widely in size, shape, weight and general characteristics.
6. Ability to build added value into a product, in the consumer's eyes, through giving it better appearance, increased interest, larger size and greater convenience.
7. Giving a line of products a definite family resemblance, thus enabling the "leader" to carry the lesser known products to a point of acceptance and purchase.
8. Ready accessibility, so that the consumer may examine the product before actually purchasing.
9. Ideally meets the requirements of retailers from an identification, inventory, storage and display standpoint.
10. Possessing to a high degree the ability to catch the eye of the consumer in a store, encouraging her to stop, examine and finally sell herself, without the aid of the clerk, as a direct result of the carton's selling message.
11. Susceptible to reproduction of almost any kind of a decorative design, from plain type printing on plain white or colored board, to multi-color process printing or lithographing.
12. Assurance that the product will reach the consumer's hands in the same attractive manner in which it left the manufacturer.

A general criticism of all manufacturers of packaged goods is that the majority do not give the same careful and thoughtful consideration to the package that they give the product. True it is that the product must give satisfaction to the consumer, and therefore must be right, but to what avail are careful selections of raw materials, expensive laboratory tests and the other familiar tests of product development, if the package is so weak, from a self-selling viewpoint, that consumers never even become conscious of its existence? It is the combination of a product that is right, and a pack-

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age deliberately designed to appeal to consumers in terms of their own selfish interests, that makes them stop, look and buy and brings success and satisfaction to manufacturer, jobber, dealer and consumer alike.

There are many practical facts which the manufacturer must assemble and analyze for himself before he can safely rush into the development or judging of the mechanical or artistic design of his package. A few of the major points are itemized:

1. What is the product? A luxury? A necessity?
2. What are the advantages for the consumer in the purchase and possession of the product?
3. What competition will the product have to meet and overcome?
   (*a*) Direct—from similar products
   (*b*) Indirect—from dissimilar products claiming the consumer's dollars
4. What is the simplest selling appeal for the product?
5. Where will the product be sold? Nationally or sectionally? In the cities? Towns? Villages? Farm communities?
6. Who will buy it?
7. Why will they buy it?
8. What size unit will they buy? 1st choice? 2nd choice?
9. Where will consumers buy it?
10. How will consumers be made conscious of the product?

Having determined these basic facts, and set them down in writing, the manufacturer can then safely proceed with the next logical step: *Size and Form of the Package* (mechanical construction). There are three important viewpoints to be considered in this mechanical stage:

1. CONSUMERS: the package must meet the requirements of:

a. Attractiveness of construction.
b. Ease of access and use.
c. Generally accepted unit of purchase.
d. Protection of the product.
e. Requirements of storage in home pantry, medicine chest, tool kit, etc.

2. RETAILERS: the package must be mechanically designed to:

a. Meet requirements of handling and storing, taking the least effort, time and space.
b. Ready display on shelves, in show cases, on counters, etc.
c. Be of a size that occupies the least front footage of display space.
d. Be of a unit that is readily acceptable to the dealer's customers, without argument or repacking.
e. Allow for examination of contents before purchase with least trouble to the dealer.

3. MANUFACTURERS: the package must meet the requirements of:

a. Economy in package cost.
b. Economy in production operations.
c. Economy in storage space.
d. Adaptable to existing filling machinery.
e. Adaptable to existing shipping containers.
f. Ease and economy in handling.
g. Made of readily available materials from several different and convenient sources.

With these mechanical considerations clearly stated, and an actual sample of the product before him, practically any carton manufacturer can make an intelligent recommendation, in the form of one or more blank dummies, submitted without charge or obligation. There is seldom only one way of packaging a product, and this gives rise to the mechanical ingenuity of the carton manufacturer to suggest several different packaging methods, enable the prospect to make a wise selection and thereby deserve his confidence and patronage, by having established confidence in the real ability to serve.

Having completed the important preliminaries of (1) defining the marketing job to be done, and (2) the mechanical construction that will best meet the needs of the three different factors in the flow of merchandise from maker to user, the next step is the development of the Decorative and Copy Treatment or Design.

On practically all folding cartons there are six spaces available for such treatment: (1) front panel; (2) rear panel; (3 and 4) side panels; (5) top panel; and (6) bottom panel.

The custom of repeating the front panel design on the rear panel is growing in popularity, inasmuch as this facilitates display on the dealer's shelves, with the least effort on the part of the dealer or his clerks to make sure that the front panel always faces the consumer in the store. The side panels can effectively serve, on the one hand, to give necessary information about how to successfully use the product, and, on the other, to do a selling job on other products in that particular line. The top panel has but one function, namely, identification of the product. The bottom panel has little real value, as it is the base or foundation on which the folding carton stands.

It is generally conceded that it is a safer policy to first determine the copy that shall occupy the various positions on the carton, and then proceed with the artistic and illustrative treatment, than vice versa. A safe rule in writing package copy is to first write it out in as many words as it takes to tell an interesting, clear and concise sales story that will "make sense," and then by intelligent elimination reduce it

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to the smallest number of words possible. If this produces too much copy to fit on the carton, without giving it a crowded appearance, it is far better to place it on a package insert, where it may be treated in as much detail as necessary, utilizing the various carton panels for attention-arresting and sales-compelling phrases, referring to the "enclosed insert for complete directions and uses."

The color scheme to be utilized will be determined by the nature of the product, its fundamental selling appeal to the consumer, and the impression that the folding carton must make on the consumer. To the manufacturer who does not know the psychology of colors it is much safer and more profitable to entrust this to competent counsel, than to blunder in, "playing hunches" or catering to one's own likes and dislikes.

Modern packages that sell themselves on sight will be found to have one characteristic in common—they are stripped of all superfluous decorations and copy, and convey to the consumer, in few words but very much to the point, a sales-compelling story that has a distinctly selfish appeal to the consumer, that immediately stops him, interests him and leads him to buy. The decorative treatment, whether it be solid panels, bands, borders or illustrative material of some nature, must serve the purpose of arousing the consumer's attention, which through the copy leads the prospect to the ultimate goal—a buying decision. Many packages, now on the market, excel in artistic designing, but from a self-selling viewpoint are "beautiful—but dumb." The ideal package arouses attention to itself through its color and decorative treatment, and then leads the prospect attractively and directly to the copy message, which does the informative and persuasive job of bringing conviction to buy. The dumb package is so beautiful that while it attracts attention, it never gets beyond that point, for the package beauty overshadows the copy message, and it is rightfully judged a package-design failure.

The sound judgment and experience of representative carton manufacturers is readily available to any one having a packaging problem. In most cases best results will be obtained by furnishing the carton manufacturer an actual sample of the product, and capitalizing on his experience for the type of mechanical construction best suited for the particular package, as well as style and weight of folding boxboard to be used.

In addition to this mechanical design service, some of the more progressive carton manufacturers have trained merchandising men and artists on their staffs to plan and execute the decorative scheme, write the necessary copy, select the best type and otherwise do a complete job from start to finish.

It should be borne in mind that "any package design is as good or bad as the facts on which it is based." This places a responsibility on the manufacturer, seeking help on the creation and design of a practical and successful folding carton, to furnish the supplier with all available facts about the product and its marketing, as indicated in the first section of this article.

If the manufacturer feels it desirable to have a professional package designer do the design job, on the basis that he can approach it from an impartial, unprejudiced and unselfish viewpoint, he has three immediately available sources:

1. Package designers, operating on a fee basis, working independently of any manufacturer, who render professional advisory service on every phase of the package.
2. Advertising agencies and marketing counsellors, many of whom have special packaging executives on their staffs.
3. Commercial artists, some of whom through past experience are particularly well fitted to advising on package design and development work.

The final acceptance and adoption of a package design rests with the manufacturer, and unfortunately the majority of them are totally incapable of passing judgment. Costly experience has amply demonstrated that many a perfectly grand looking package, exhibited on a broad expanse of mahogany desk or conference table, loses all of its appeal and pulling power when surrounded by rival brands on a dealer's store shelf.

Supposing the new or re-designed package is beautiful, flattering to the manufacturer and loudly praised by his associates? In present-day merchandising it has been found that there is a new, better and more effective judge of any package, namely, the consumer. Trained through years of advertising and other improved educational opportunities, the consumer is quick to register his approval or complete ignorance of a package.

In every retail establishment today a bitter battle is being waged. The Battle of the Brands—a race for consumer's attention, acceptance and purchasing. In order to win, the package must be styled (designed) to harmonize with the pleasure, benefit or satisfaction that the possession and use of the product will bring the consumer. The final judgment of the value of a carton design rests, therefore, with the consumer. So design your cartons that they please consumers, and sales readily register their approval. Trust your own judgment, and make your selection to please your own selfish viewpoint, and you are courting lost sales and diminishing volume in the products you package.

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SPECIFICATIONS—CARTONS AND DISPLAY CONTAINERS

by Arthur J. Weiss

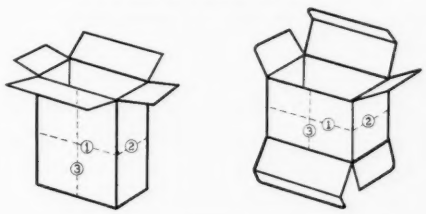
DUE to the lack of uniformity or standard method of specifying the dimensions of a folding carton, causing frequent misunderstandings and errors in the industry, the Paperboard Industries Association adopted at a meeting, held on May 21, 1930, a simplified standard for stating the three dimensions of a folding carton.

Shown below are diagrams indicating, by number, the sequence in which specifications are to be presented, thus, in the case of either carton or counter display container, the following will apply·

1. The larger dimension at the opening.
2. The smaller dimension at the opening.
3. The third remaining dimension.

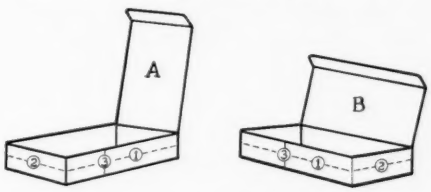
All measurements are understood to be from center of crease to center of crease.

SEAL END CARTON
REVERSE TUCK CARTON



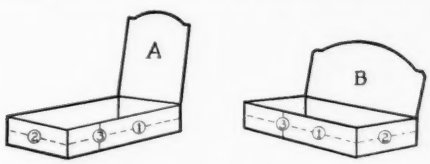
ONE-PIECE BOXES WITH COVERS

State whether or not cover extends from first or second dimension. (That is, whether like A or B.)



DISPLAY CONTAINERS

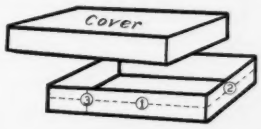
State whether or not display panel extends from first or second dimension. (That is, whether like A or B.)



Adherence to this rule will greatly facilitate mutual understanding and tend to make a uniform system.

TWO-PIECE TELESCOPE BOX

In two-piece boxes dimensions of bottoms are given.

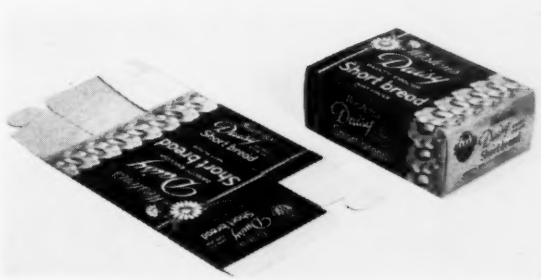




REVERSE TUCK CARTON

Popular style for low-priced candies, toilet and pharmaceutical articles, extracts and other products. Easily set up by hand, and may be packed automatically. Conveniently opened and closed for removal of contents, as used. Economical in manufacture because cartons interlock.





REVERSE TUCK CARTON WITH ARTHUR LOCKS

Same as reverse tuck, except bottom side flaps lock to prevent heavy contents from falling through bottom. Used principally for packing jars and bottles containing toilet preparations, medicines, condiments and other heavy articles. Sometimes made with Arthur side locks both top and bottom, to hold flat round jars and similar objects securely.

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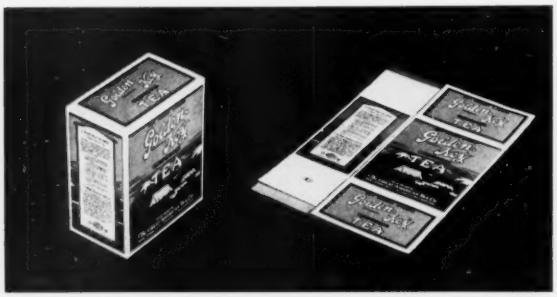
STRAIGHT TUCK CARTON

Has no advantage over the reverse tuck carton except that it is required for operation on some automatic machinery. It is extensively used and is particularly adaptable to high speed automatic cartoning. Must be made with right and left glue seams to secure the economy of interlocking.



COLONIAL LOCK BLANK

A folding blank, supported when set up by interlocking hooks and catches, requiring no gluing either by the box manufacturer or the user; very economical because of sheet layout. In universal use by biscuit and cracker manufacturers and is generally enclosed in a sealed, printed wrapper.



SEAL END CARTON

The most popular style carton for packing flour, cereals, sugar, salt, teas, coffees, spices and many other food products, soap powders and other cleansing preparations. Difficult to seal by hand; but packed and sealed on automatic machinery it reaches the consumer with the contents untouched by hands and well protected.



GREENLEAF CARTON

Locks at each end securely. Extensively used for packing dried fruits and other heavy or bulky food products; also as shelf containers holding individual packages in sales units as shown.



SEAL BOTTOM, TUCK TOP CARTON

Handy as a pocket package for cough drops and small candies as well as for various other products. Has the advantage of the solidly sealed bottom and the convenience of the easily opened and closed tuck top for the free use of the contents. Packed on automatic machinery. Not adapted to hand packing, because of bottom sealing operation.



TUCK TOP, GREENLEAF BOTTOM CARTON

An adaptation of both styles, permitting the security of the Greenleaf lock on the bottom and the convenience of the easily opened and closed tuck top. Used for the larger candy packages, heavy food products, shelf containers and many other purposes including individual sales units.

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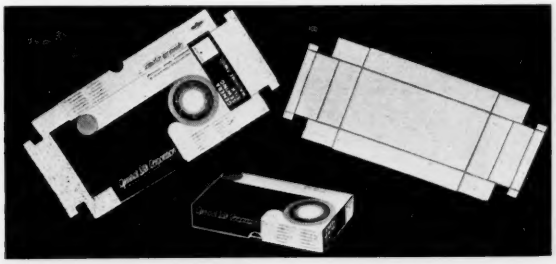
PETERS LOCK BLANK

This is similar to the Colonial lock blank except for the machine set-up. Likewise used extensively by biscuit and cracker manufacturers, and generally enclosed in a plain or printed wrapper.



TUBE AND SLIDE BOX

Consists of a folding blank variously contrived, to be inserted in a tube. Its two-piece construction makes it substantial enough to be carried without damage in the pocket of the consumer. It permits the easy removal of one article without spoilage of those remaining. It is extensively used for cigars and cigarettes, pencils, crayons, etc.



TWO-PIECE PROSPECT BLANK

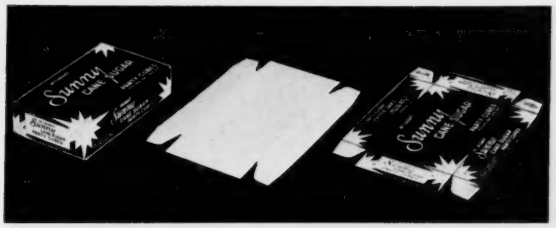
Two-piece box made up of blanks folded by hand. The ends overlap and are held against the side by friction. The cover may be made full or part depth and the blank glued at the side affords additional reinforcement, a recent development of the overlapping end blank in which an extra tab is provided as an extra protection at the corner. A similar reinforcement along the sides can be provided without the necessity of preliminary gluing. This style is the most recent development of the hand assembled telescope box. It has many decided advantages in the textile and in other industries, where it may be substituted for a solid box.



BRIGHTWOOD BLANKS

Brightwood machinery is installed in the user's plant for the purpose of setting up and gluing two styles of blanks, both of which are illustrated.

The one-piece blank is folded and automatically glued along the vertical panels by a carton forming machine, which automatically fills and seals it. It is necessary for the user to have sufficient production to gain the economies made possible by the use of the automatic equipment.



The two-piece style machine is fed blanks which are automatically glued into box and cover. The types are various—the cover may fit over the box to its full length, or only part way. Both one-piece and two-piece are adaptable to a wide variety of products and offer economy where there is sufficient production.



BROAD-WAY OPENER BOX

A new development in cartons that permits of inexpensive automatic filling through the ends of the cartons after which the ends are sealed and the box is opened the broad way, hence the name. This box may be also finished to form a counter display container without impairing the economical filling operation. Patented.

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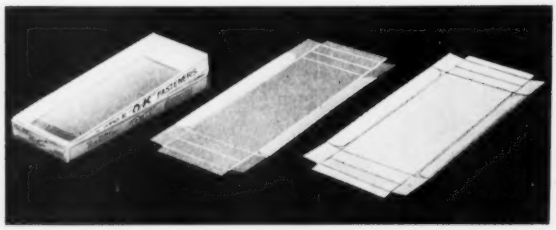


ONE-PIECE TWO AND FOUR HOOK CATCH BLANKS

An economical style of box, in which hook catches at the four corners hold the box in place; very economical to manufacture, but difficult to set up. This

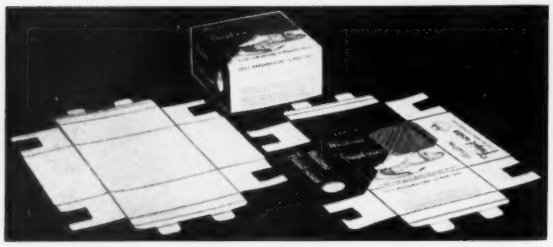


style is not sufficiently durable to stand transportation or rough handling, but is a particularly suitable box for the baker, where small quantities are required in a number of different sizes.



TWO-PIECE FULL TELESCOPE OVERLAPPING ENDS CARTON

A good substitute for a solid box—is economical to manufacture, easily set up by hand, and makes a very neat, substantial package. It is used very frequently for candies, also for dry goods, etc.



TWO-PIECE OVERLAPPING BOLT END BOX

This box is very secure. It is used extensively for packing hardware and other heavy matter where strength of the full telescope feature is desirable.



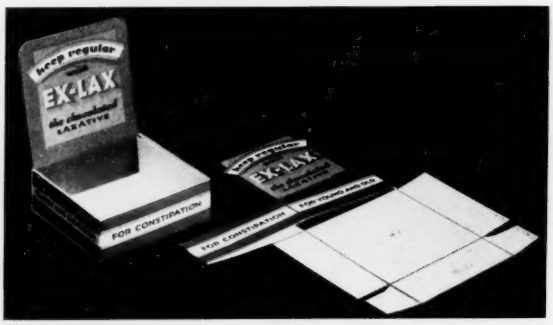
TRANSPARENT CELLULOSE WINDOWS APPLIED TO ORDINARY CARTONS

Manufacturers of candies, cakes and other products usually bought on sight are desirous of having their folding cartons made with a window to reveal the contents. Formerly, gelatine was used, but of recent years transparent cellulose has made rapid strides and is often used in its place.

POURING SPOUTS APPLIED TO SEAL END CARTONS



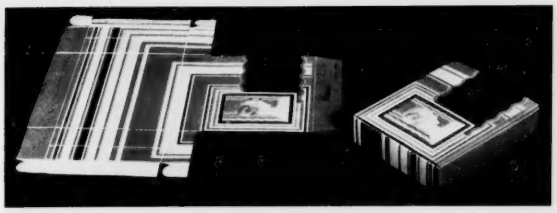
There are a number of different devices applied to the top panel of an ordinary sealed carton to permit of easier access to the contents, but one of the most unusual is the one illustrated. The pouring spout is fashioned from the top flaps of the carton, and when properly operated by the housewife, is formed into a spout which may be opened and closed at will. Patented.



CLIMAX COUNTER DISPLAY CONTAINER

Very simple to set up. Lies flat on the counter. A protective cover is necessary, making the box more expensive than the panel-fold which has no cover. Requires printing and coating one side only. Display panel is equipped with supporting flap.

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ONE-PIECE OVERLAPPING SIDES



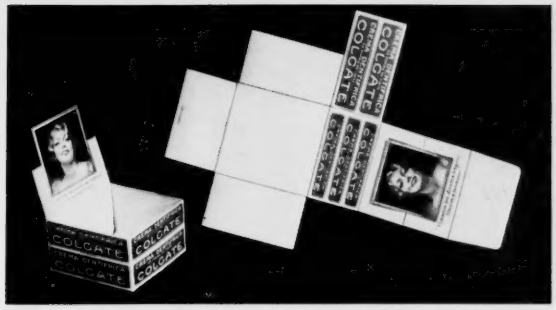
ONE-PIECE OVERLAPPING FRONT—LOCK BACK PANEL FOLD COVER

Economical to manufacture and extensively used for display purposes, this box has the added strength of the overlapping front which is not provided in the straight front box. The box can be made with panel-fold style display top, making possible the economy of printing on one side only. Both illustrations above show adaptations of the same type.



TINSLEY COUNTER DISPLAY CONTAINER

A box of patented design, so contrived that the cover, folding under, proves an easel support to display the goods. A remarkably successful type of display box because of its simplicity in construction, its ease in setting up, and because it has sufficient strength to act as a combination carrying and display box. It is susceptible to fine printing, required on one side only. The display panel is held at the proper angle by a supporting flap. Much of the universal success of this box is due to the fact that it is easily converted from a carrier to a display container by the retailer.



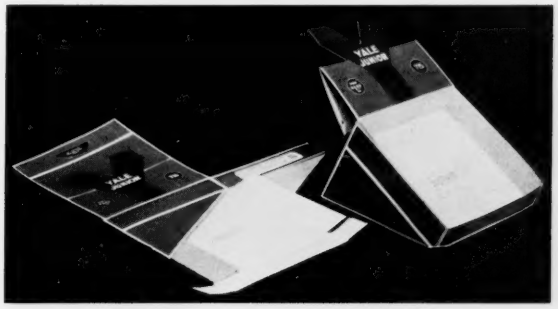
PANEL-FOLD COUNTER DISPLAY CONTAINER

Simple in construction and setting up. Cover is so arranged as to make an attractive display panel. Protective cover is optional. Stands flat on the counter and provides good visibility to the displayed items. Requires printing and coating only on one side of the board.



PANEL-FOLD CONTAINER WITH LOCK BOTTOM

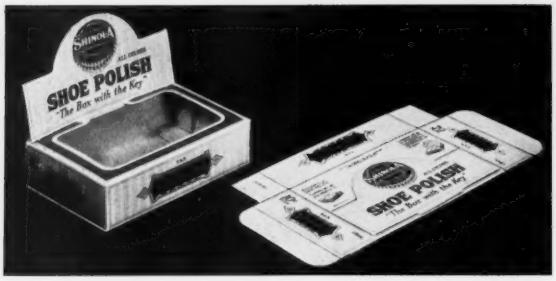
Similar in general appearance to the panel-fold, except that the locking device is on the bottom. This makes possible gluing of box on automatic machinery, with resultant speed and economy.



SIMPLEX COUNTER DISPLAY CONTAINER

Simple to set up. Special easel feature permits tilting at different angles. Principal feature is simplicity with which dealer may display the goods at an angle. Protective cover is necessary. Requires printing and coating one side only. Display panel is equipped with supporting flap which enables advantageous showing of the advertising message.

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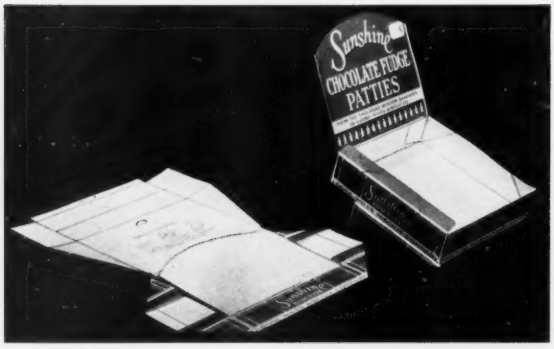
FIVE-PANEL COUNTER DISPLAY CONTAINER

Old established style still in limited use. Requires printing two sides and coating two sides. Somewhat difficult to fill, since the packer must insert goods from side. Lies flat on the counter. Display panel is equipped with supporting flaps which hold it in an upright position at all times.



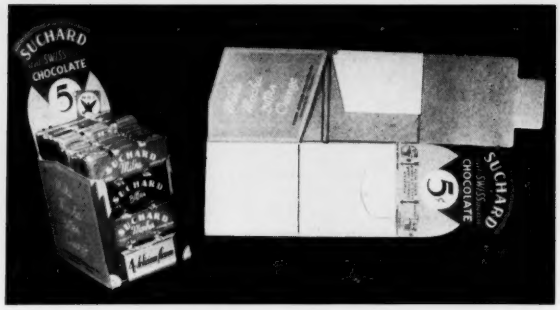
TILTING DUMMY DISPLAY

Excellent for perishable articles, like cheese and butter. Shows replicas of the individual packages, but does not hold any goods. Automatically set up by dealer as he places in the side tucks, an economical and attractive display.



ROSE DISPLAY CONTAINER

A very effective blank and one of the leading types of display containers. The cover section forms an easel, and is very readily transformed from a shipping box to a tilted display box by the storekeeper. It does, however, require that printing be done on both sides of the board.



DARRAGH DISPLAY CONTAINER

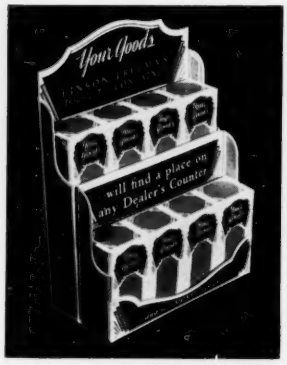
Another recent addition to the display container field, the main feature of which is that the contents when loaded for shipment are in an upright rectangular position, but when the box is set up for display, the contents are thrown to a stacked position and make a very attractive appearance on the counter. Also, the box is so constructed that the display panel is held in a certain position more or less rigidly and does not flop forward or backward as do so many containers.



GAIRWAY DISPLAY CONTAINER

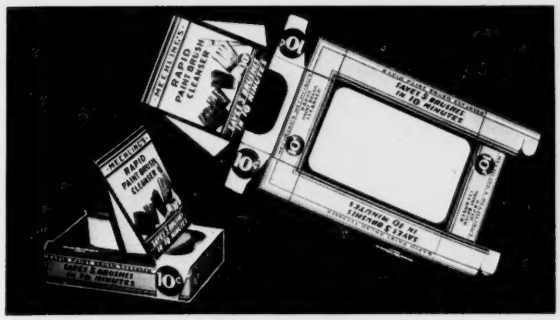
An effective new type of display container in which the individual contents are packed in a staggered manner for better display. Particularly useful for fragile packages put out in glassine bags. Very easy for the dealer to sell, and the contents are kept in tidy position while on the display counters. This display is protected by patent.

SKYSCRAPER (BROKEN BACK)



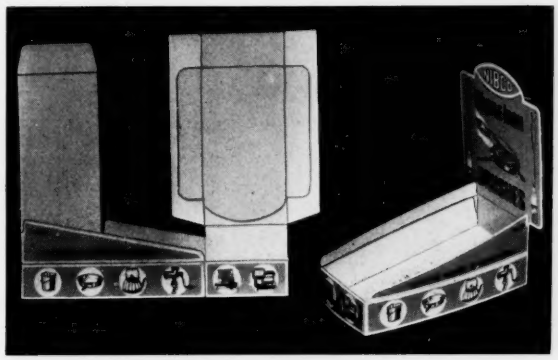
A recent addition to the field of counter display containers which displays contents in two tiers and stays on the counter in an upright or "skyscraper" manner rather than the familiar long horizontal shape. Some are made with an easel in the rear to hold the second tier in a raised position. Patented.

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DISPLAY DISPENSER

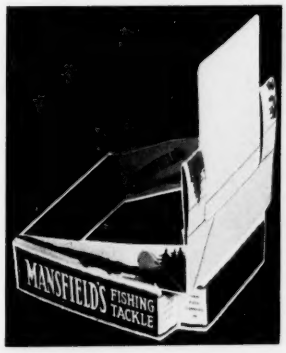
A new departure in counter display containers. Instead of the conventional type of display container which shows goods on display with the display panel in the rear, this container has the display panel part way back. In front of the display panel appear several of the articles on display. The bulk of the product is packed *behind* the display panel making for convenience of the store clerk. The unsightly appearance of half-filled containers is avoided. This container always retains an orderly appearance until the last package is sold.



BROOKS' DISPLAY CONTAINER

A counter display box complete in itself; that is, no protective cover is necessary. The box is equipped with a tab at the rear of the goods which the dealer elevates and secures in the rear panel. This throws the goods on display to a desirable angle.

BROOKS' SIMPLEX CONTAINER

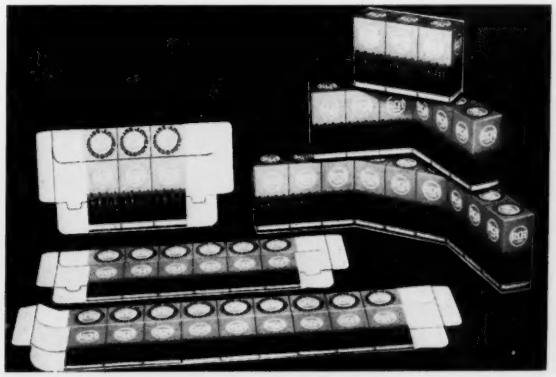


Same style as Brooks' display except that the elevated section is supported by folding in rear corners of base. Made either with single display cover or with fold-over display lid and can be used as a complete shiping unit. Display as well as other Brooks containers shown are protected by patents.



BROOKS' DOUBLE COVER CONTAINER

An elevating display in which the retailer must set up the display panel in order to uncover the contents, with a positive wing type support for the elevated section of the box.



GIANT PYRAMID WINDOW DISPLAY DUMMY

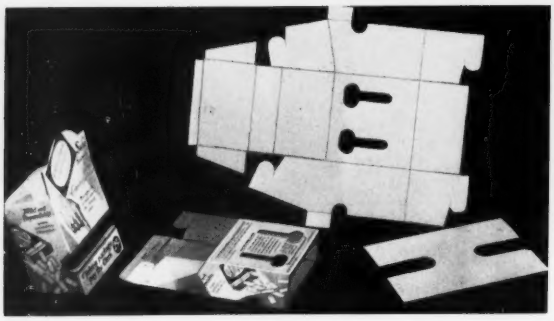
An effective window display in pyramidal form made up of three folding boxes. Distributed in knocked-down form. Easily erected and very stable. The whole unit may be moved from one position in the show window to another without disturbing the form of the display in any manner.



TWO-PIECE FULL TELESCOPE COLLAPSIBLE BOX

These boxes are glued in collapsible form and shipped to the user in that manner. The user merely pulls them open and the boxes are then ready to be filled. The great advantages of this box are that no setting up machinery is required and it is inexpensive in manufacture.

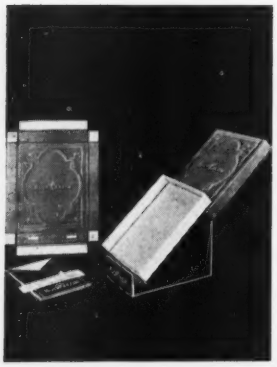
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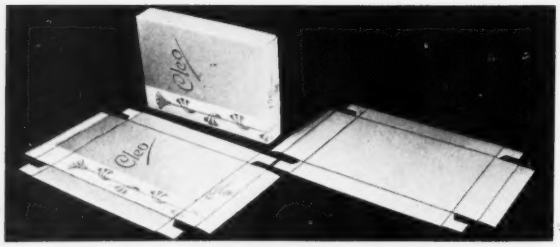
GRAVITY DISPENSER

Another type of dispenser which can be equipped with separate dividers when two or more rows are desired for a greater advertising surface. This container can be designed to any desired tilt, and can also be equipped with an easel when the container becomes topheavy. The container also has a sales thermometer in the rear to show when to refill.

BETTER-VIEW DISPLAY STAND



A simple collapsible contrivance used for counter or window display of a two-piece telescope box. Usually made so it will fit within the box. When erected it shows the bottom with the contents showing at an angle, and the cover behind it. The cover is used as a display panel. Makes effective window display at little cost.



TWO-PIECE FULL TELESCOPE BOX

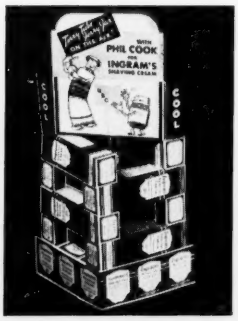
A comparatively recent and important addition to the types manufactured by the folding box industry. Its particular advantage is that it is shipped to the user's plant in flat, knocked-down form and set up by the user at his will. The transportation and storage of empty set-up boxes is obviated, and many progressive manufacturers are turning to this type of box. The corners are particularly strong and the box can withstand a great deal of stacking stress. It is made with reinforced side and end walls in a variety of types. This box is set up on automatic machines, or on hand setting-up machines.



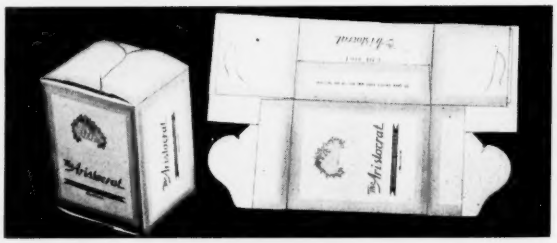
BASKET DISPLAY

A container designed primarily for floor or counter display. It does not serve as a shipper but is easily set up by dealer, with the contents in a pleasing disorder. Adapted for quick sales of small packages.

PYRAMID DISPLAY



An advertising unit only, designed to replace the actual carton or package. The pyramids are shipped flat and may be easily set up by the dealer and present an unusually attractive feature adaptable for use in window, counter and shelf display.



ICE CREAM CARTON

A new advancement in ice cream packaging. A folding type of carton embodying several attractive features. The construction of the lock ends renders the box liquid proof eliminating the need of liners. It may be neatly and easily opened through the use of a special flap.



ONE-PIECE COLLAPSIBLE CONTAINER

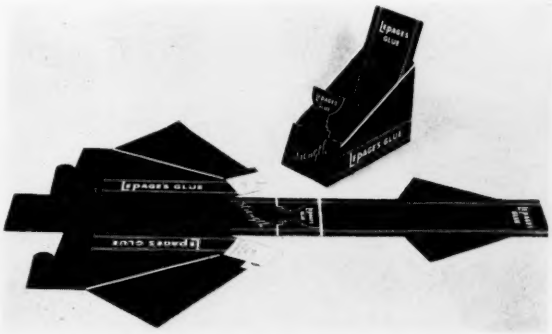
A simple one-piece container serving as a carrier especially useful where quick set-up and economy of cost are factors. It is, of course, shipped to user in knocked-down form as shown in top figure.

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POCKET FRONT-PANEL FOLD-LOCK BOTTOM

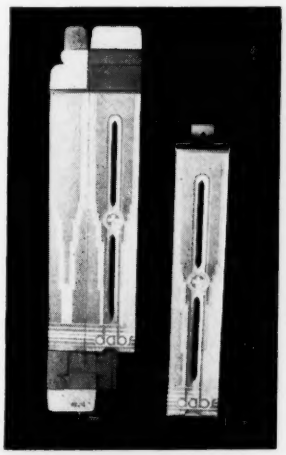
An unusually ingenious form of the dispenser type display container. The contents are sold from the stock packed in the main portion of the container—while the pocket or pouch front permits of an effective continuous display of the actual article. This prevents unsightly gaps in the display line and thus successfully overcomes a frequent objection to the counter display.



RHOMBOID DISPLAY CONTAINER

A novel display container and shipping unit. The sloping sides and special construction permit of displaying the goods in slanting tiers presenting a novel effect. Provided with a protective sleeve, it may be shipped packed in set up form ready for display. Especially well adapted for the display of tube or bottle cartons and similar small packages.

SELF-SERVICE CONTAINER



This high, narrow type of container, designed to occupy the minimum of space on especially crowded counters, utilizes the same "automatic" vending machine principle which piles up a single row of packages, providing an opening at the bottom through which a package may drop or be withdrawn. Fits into odd nooks or corners, or may be hung from a nail on a shelf.



BOTTLE CARRIER

A sturdy container designed to carry six beverage bottles. It serves both as a display unit and with the handle makes a splendid "carry home" package, thus promoting the sale of the six bottle unit. This container is protected by patent.



TRIANGULAR TINSLEY CONTAINER

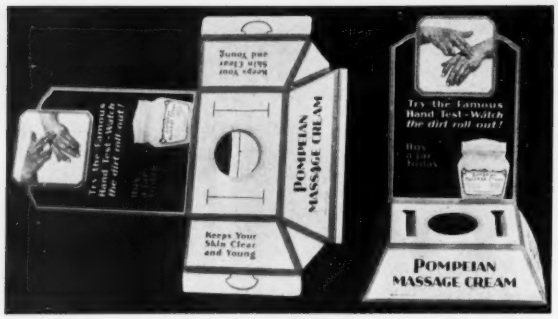
A novel development of the patented Tinsley style of display container. Triangular in shape—its novel appearance insures consumer attention. It of course incorporates the tilting feature of this display style and similarly serves not only as a display, but as a compact, substantial shipper. Its style is especially well adapted to the display of small articles of odd shape that can be shown to advantage.

STEP DISPLAY



The two or three tier display stand illustrated fills a particular place in today's merchandising scheme. The stand is shipped flat—in three pieces and is easily set up by the dealer. It includes a fibre support for the steps and a display card for the rear. It is especially well suited to the display of packaged baked goods or similar packaged material and has proved of real value as a means of securing counter or floor display in various retail as well as the chain stores.

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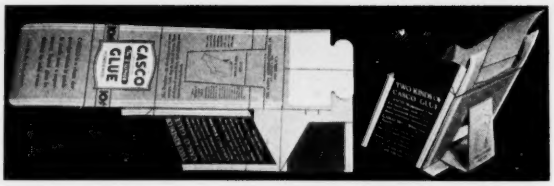
FIVE-PANEL COUNTER DISPLAY

An interesting adaptation of the "Trial" or "Sampler" counter display. The platform base with proper cutout apertures or slots holds the actual articles properly set up for trial or sampling. This can be easily set up in the familiar tuck carton form and the display card naturally assumes its proper place presenting ample display or instruction space.



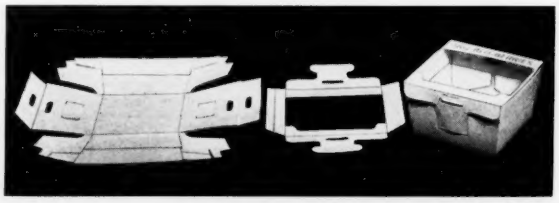
ONE-PIECE COLLAPSIBLE BOX

A one-piece cover type of container shipped in flat form. It is quickly and easily set up ready for use. The slots permit of locking in the cover, making this style especially well suited for baked goods and similar products. The use of a transparent cellulose window in the cover adds an attractive feature.



TILTING LOCK BOTTOM-PANEL FOLD COVER

An attractive type of the very useful tilting display container. This is particularly well adapted to the display of small packaged items such as tubes or bottles. The tilting feature is simple in construction presenting no difficulties to the storekeeper—thus insuring proper display on the counter. The cover gives proper display value.



BERRY CARTON

The paper berry basket is now an accomplished fact. This type of paper carton has proved its adaptability to replace the time worn wooden basket. The paper basket illustrated is made up as a folding basket style with wire stitched overlapping sides to set it in proper position for use. The raised bottom effect and slotted sides insure proper ventilation for the contents. It can also be equipped with window cover, which is secured with locks.

PARAFFINED CARTONS AND CONTAINERS

by Williard J. Devencau

WAXED or paraffined cartons and containers were developed to fill a definite need, which had five peculiar characteristics:

1. Maintaining and protecting a moist, perishable product within the walls of its own original package.
2. Protection against the penetration of moisture, from the outside, through the walls of the original package (as in iced refrigerators).
3. Maintenance of the original sweetness and purity of a manufactured product against contamination by outside foreign odors (such as fish, onions, cabbage, etc., for which butter has a natural affinity).
4. A practical package for perishable and greasy products, fitting in with manufacturing operations, shipping, retail store handling, storing, sale and display, and convenience to the ultimate consumer.
5. Economy in labor, container, shipping and manufacturing costs, so that perishable and costly products may be swiftly, economically and attractively marketed to the general public.

While, with the development of the packaging art, new products are being constantly developed, the major ones especially adapted to be packaged in paraffined cartons and display containers are: Butter, oleomargarine, ice cream and sherbets, lard, vegetable shortenings, smoked meats—such as bacon, sausage, etc.—and salted nut meats.

It has been conservatively estimated that products valued at around one-half billion dollars find their way from point of manufacture to retail stores, every year, packaged in paraffined cartons and display containers.

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SET-UP PAPER BOXES

by William H. Perry

THAT every one knows what constitutes a set-up paper box is a foregone conclusion. It is the intention, therefore, to list only the various and diversified attributes of the set-up box. We then ask you, who must of necessity consider your package as a most important part of present and future merchandising and marketing effort, to consider seriously all of its salient features?

If your product should be encased by such a container to properly "follow through" from all marketing angles, then by all means use set-up boxes. If it does not, then use that container which most properly answers your requirements.

Strength—Set-up boxes, by their very construction of news board, corner stays and covering paper are the strongest paper containers in existence.

Low Cost—Considering small and large unit runs, diversity of sizes and treatments they present the greatest value per dollar of cost.

(Highest) Quality—Combined with all factors above and the fact that they are completely fabricated makes them the highest quality paper container on the market.

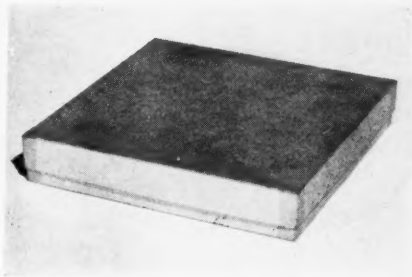
Adaptability—Set-up paper boxes have the greatest adaptability to varying sizes, shapes and covering materials hence—

Consumer Acceptance—The above intrinsic values plus proper design, after utility and proper convenience connote a sense of quality of product and hence ready acceptance by ultimate consumer.

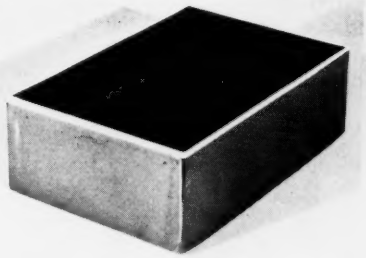
These attributes are defined and graphically described in the following columns.

GROUP 1. TWO-PIECE BOXES

Primary function is low cost container for merchandise in transit and in stock. Diversity in this group comes rather from size and strength than art design.



Two-piece rough (not paper covered), cornered out, paper stayed



Base and lid banded, lid trimmed, lid topped telescope lid



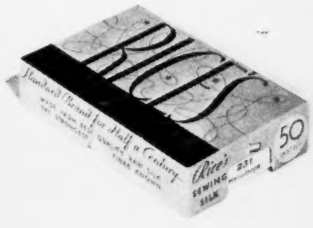
Shallow lid, lid banded and topped, base banded and bottomed

GROUP 2. AUTOMATIC MACHINE MADE BOXES

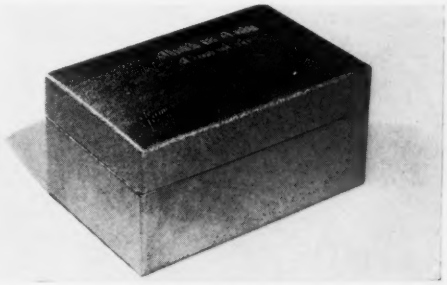
Widest variety here from what is commonly known as the two-piece solid wrap or bundle wrap style with variations and additions of both pieces and fabrication to most exquisite containers with beauty of proportion, covering materials and art design.



Simple two-piece, shallow lid, solid wrap, base and lid, complete lid surface designed for consumer acceptance

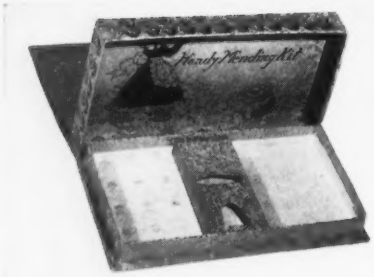


Two-piece telescope thumb-holed. Modern billboard designed for consumer appeal and customer identification

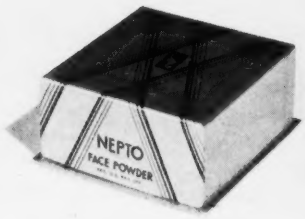


High grade candy box. Base and lid with neck added, plus domed top for added beauty (parts and trays for proper packing)

GROUP 2. AUTOMATIC MACHINE MADE BOXES (CONTINUED)



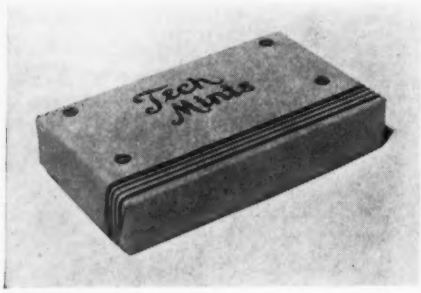
Solid wrap lid hinged to three-flange, solid wrap extension base with added died-out part in base for holding and displaying product



Telescope, solid wrap lid, extension edge base, transparent cellulose windaw (face powder drum)



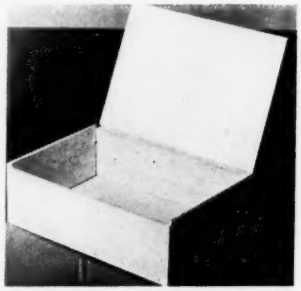
Telescope, solid wrap extension base and lid. This is an example of typical candy box construction as found today



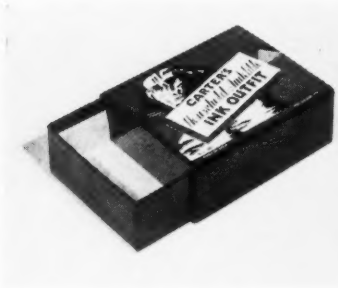
Telescope, bundle wrap lid, solid wrap base



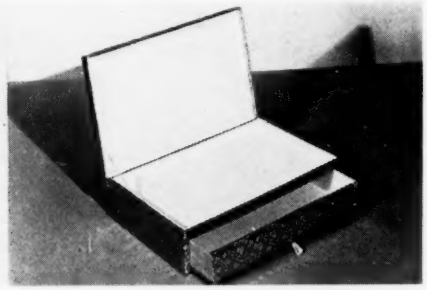
Bundle wrap base, bundle wrap lid with tray neck



Solid wrap base, flat hinged lid



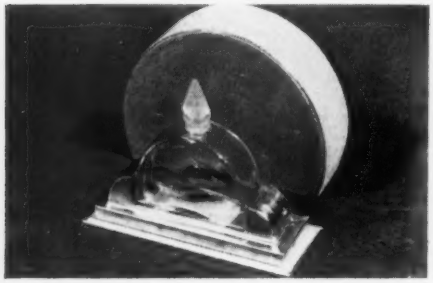
Solid wrap base with shell. A transition box or a special type box



A transition type box, partly solid wrap by machine and partly hand made

GROUP 3. HAND TAILORED BOXES

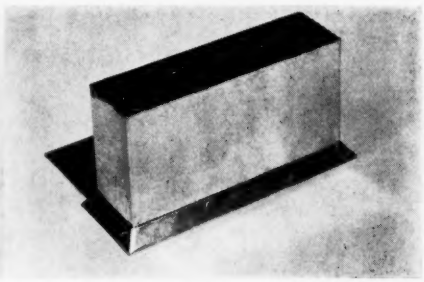
Beauty of design and proportion help to glorify the product on display. Generally these containers are most proficient in their after-utility functions.



After-utility plus opportunity for entrancing display, as applied to boxes for perfumes, toiletry items, etc.



Employing high grade materials and original designs, suitable as containers for gift items, luxury products, etc.



Hand made for more or less constant service and combining utility with attractiveness. For playing cards and similar items

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LININGS FOR BOXES

LINING assumes as important a role in the makeup of certain packages as the outside covering. A large percentage of boxes are lined with white or tinted papers as well as with gold and silver papers. Suede paper which is lined onto board or else wrapped over the form so that the score lines will not show are also used. Rayon is likewise used on some of the cheaper forms.

A most practical material for box linings is velveteen, frequently miscalled velvet. The difference between the two is a technical one and the average layman does not know the difference between velveteen and velvet. Velveteen is more practical than velvet for the following reasons: its appearance is that of velvet; it is lower priced than velvet; its construction is such that when applied as a lining, pastes and glues will not come through; certain velveteens are prepared anti-tarnish for this purpose, which means that silver and other metals are not discolored.

Velveteen fills a particular lining need in good packaging, especially where a soft cushiony effect is desired, as nothing can quite give the effect of richness as a luxurious velveteen. Many box, case and tray manufacturers have been using velveteens for linings for many years, notably all the nationally known silverware manufacturers, pen and pencil set manufacturers, for perfume boxes, cutlery articles, razor cases, spectacle cases, draughtsmen's materials, toilet articles. Jewelry boxes are frequently made with velveteen used both as an outside covering and as lining material.

Velveteen comes in widths of 18 in., 22 in., 24 in., 29 in., and 36 in., making for a minimum of waste in cutting, and in a color range of 102 shades. When necessary any other shades can be dyed to match other materials. Velveteen is particularly adaptable to packaging as it is easily handled and may either be tightly stretched or shirred and conforms well to the surface which is being covered.

Perfumes and compacts are generally shown to best advantage in the various champagne shades, whereas shades of old rose, Copen blue and gooseberry are used for manicure sets. Silverware manufacturers incline to the more regal shades of royal blue, though there are the usual variations to meet the individual creations. Silverware trays prepared for the packaging of silverware in individual packages are also being lined with velveteen in shades of burnt orange, special shades of green, Copen blue and grey. For the lining of boxes which hold pearls, greens and turquoise blues are used. For the general run of cheap jewelry display, the predominating colors have been military blue, emerald green and mignon purple. For pen and pencil sets such colors as burnt orange, special Nile greens, as well as crystal grey, are used.



ARTIFICIAL LEATHER FOR BOXES

THE material known as artificial leather offers a medium for covering boxes which allows for many and varied effects. This is a standardized material, the base of which may be either cotton fabric or latex saturated paper. To either of these base materials, a coating of pyroxylin is added. Usually, the artificial leather is grained with leather grains or other designs and may be furnished in more than one color. When other colors are added to the base color, this is known as an overtone and is laid on so that it shows only in the low spots of the grain, thus imparting a two-tone leather effect.

Artificial leather, because of its pyroxylin coating, is waterproof and can be washed; therefore, making it practically stain-proof. Being tough and pliable, it can be deeply embossed, making it the ideal wrap for de luxe or gift boxes where it is possible to simulate the appearance of leather cases, treasure chests, Venetian art work or bound volumes.

Boxes covered with artificial leather, naturally, are more expensive than ordinary paper covered ones but because of their rich appearance and wearing qualities are kept for other uses.



EMBOSSING FOR PACKAGES

THE art of embossing is in the hands of the artist who is creating the design. He is the one to determine the elements of the design to be embossed. It often happens that designs are overembossed, as, for example, when it is left to the discretion of the die-cutter. In some instances, such as in the preparation of a beautiful Mazarin chest, when we are copying the sculpture of a creation of the 12th Century—a solid gold chest—it would be quite necessary to emboss all of the detail. This replica of the Mazarin chest is now being used by Schrafft's and is known as the Gold Chest.

There are no set rules as to how a die should be engraved or chiseled. It depends solely upon the feeling of the artist. The art of embossing is to emphasize the particular motif of the design, to bring out such eye appeal as scroll work and lettering; in other words, emphasizing the very important features in a design. Dies are usually cut in brass, but for the unusual and difficult embossing effects, steel should be used.

Regarding the depth of the engraving of the die, it depends entirely on the thickness of the paper that one desires to emboss. The paper should be of a flexible long fibre nature with sufficient strength and resiliency to retain the embossed impression. By the use of heavy paper, embossing of greater depth and detail may be used. When embossing goes beyond the normal strength of paper, it is often necessary to moisten the material desired embossed; and with a drying process, the beautiful embossing is retained.

The machine for obtaining the best results for embossing paper requires the minimum pressure of at least ten tons and a very slow dwelling impression is quite important. Speed is one thing that must be eliminated, as a fast impression will not effectively bring about the desired results.

In summarizing, embossing requires first, the vision of the artist; second, the skilled workmanship of the die-cutter and third, the proper equipment and skilled workmanship.

RAISED PRINTING

TWO years ago the Virkotype process of raised printing was introduced to the packaging field in a limited way. Since that time, without the benefit of intensive effort, this process has extended rapidly and now many nationally known and advertised products are packaged in boxes with Virkotype wraps.

This process offers many advantages to those seeking unique effects and arresting eye appeal for their products, whether these be produced in quantity or in small runs. The process is extremely simple, being merely a continuation of the printing operation. Sheets are printed in the regular manner on any type of press and by extension delivery are run into the process machine and are there automatically processed, resulting in distinctive embossed effects of raised printing.

These embossed effects have a real advantage over die embossing. Besides exceptional brilliancy, Virkotyping will not chip or crack in folding, and cannot be easily removed from the sheet by scratching or friction. No special plates or dies are required as the effects desired are obtained from regular type or line cuts. Any color or metallic shade in raised printing may be combined with any number of flat printed colors. The raised printing process is applied merely as one more impression in the printing.

Automatic process machines are available at reasonable cost in various sizes, the largest of which handle a sheet 26 in. wide and of any desired length.

To manufacturers desirous of packaging so that the display of the packaged product on the counter or shelf arrests the eye and concentrates attention of the potential customer, the brilliancy and distinctive embossed effects attainable with Virkotype raised printing have a particular appeal. Firms specializing in the production of Virkotyped box wraps are located throughout the country, and many of them have available a complete service of design for those interested in improving the appearance of their containers.

WOODEN BOXES AS MERCHANDISING CONTAINERS

by E. H. Bergin

NOT many years ago a wooden box, highly decorated and colored, was unusual. Now it is in general use, despite the greatly increased cost. The advantages are obvious and easily defended. First of all comes increased attention value. Then comes the resistless appeal of beauty and, finally, utility. These boxes are manufactured from solid lumber (native woods), others a combination of plywood lumber, veneer, paper and metal, and many of rare woods gathered from the far corners of the world.

Perhaps some of the most widely used of fancy wooden boxes are those made of cedar. The most commonly known species is known as Virginia

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juniper or red cedar and is grown principally in southern states, particularly Tennessee. This wood is brittle and requires careful drying to provide a condition ideal for box making. Two types of boxes are generally made, the tongue and groove construction or the lock corner type.



Metal decorated wooden box for toilet set

To make either type, the lumber is taken from dry kilns and run through a rough shaper which removes most of the outside roughness. It is then cut into lengths of approximately the size of the box to be made and then put through a glue joiner prior to being glued into large sheets. These sheets are then cut into smaller pieces and the thickness cut to dimension required by what is known as a rip saw. The pieces are then ready for either tongue and groove or lock cornering.

After the four pieces are lock cornered or tongued and grooved, the ends of the pieces are dipped in glue and then placed in a press and the sides and ends are pressed into place, making a frame, the width of which is the inside depth of the box to be made. Two pieces of wood are then glued on to the frame, making the top and bottom, and are placed in a clamp where they remain until the glue has set. They are then removed and all excess lumber is sanded off on a rough disc sander, from which operation they proceed through two other sandings, each one finer than the other. They are now ready for the finishing materials. Boxes are then sawed in two, thus making the lid and bottom part. Small holes are then drilled for hinge nails and boxes are hinged and nails clinched.

Final finishing touches are varied. In most cedar boxes, small brass straps attached with fancy headed tacks are generally used with brass handles and padlocks, completing the metal decorations. Boxes that are made of poplar, basswood, gum or other white woods, are either finished with mahogany, walnut stain or lacquer enamels of various colors, or maybe paper or leather covered. Decorative aids are found in the use of decalcomania, silk screened designs, art pictures, and the most recently used, etched chromium or copper zinc that is formed in various shapes or with colored effects. Interiors of such boxes are enriched by lacquers of harmonizing hues or lined with silk, satins, velvets, or fancy papers. Natural interiors also present a pleasing appearance.

Such boxes are widely used by manufacturers of such articles as candy, glacé fruits, stationery, cosmetics, leather goods, shoe laces, garters, suspenders, belts, fruit cakes, cookies, soap, cigars, cigarettes, hosiery, silverware, and for many articles requiring a merchandising container. Their reuse value after the mechandise is removed is of important consideration and boxes are usually selected where there is a definite hook-up between the article and reuse idea suggested.

TIN PACKAGES AND CANS

by Edmund Hoffman

THE product of the tin container manufacturer is so broad in scope and so diversified in type that only the most standardized classifications can be outlined in the allotted space of even so generously proportioned a publication as this catalog. In addition to thousands of specialty items, the can manufacturing industry supplies containers for hundreds of major products so varied in type and package requirements as aspirin tablets, paint, fruit cake, talcum powder, coffee, shoe polish,

tomatoes, cigarettes, oysters, lard, hand soap, lubricating oil, etc. Methods of manufacture and the types of equipment required to produce containers for these products vary as widely as the products themselves.

Tin containers are divided by the manufacturer into two general classifications: (1) Packers' Cans and (2) General Line Containers.

PACKERS' CANS

Packers' cans, also called sanitary cans, are the hermetically sealed containers used for packing processed perishable foods such as vegetables, fruits, fish, meat products, soups, etc. Every one is well acquainted with the standard cylindrical sanitary can commonly used for packing tomatoes, baked beans, salmon, corn or soup. These round cans, made in a wide range of standardized diameters and heights furnished with the design lithographed on the body of the can or in plain tin for paper labeling, represent the bulk of the production of the packers' can factories.

Other types of sanitary cans are the tall oblong style commonly used for packing asparagus, the flat oblong sardine can and the large irregular shaped cans now widely used for packing whole hams and chickens.

GENERAL LINE CONTAINERS

General line cans embrace all of the tin containers other than those for processed food products and are divided into two principal classifications: (1) Liquid Containers; (2) Dry Product Containers.

LIQUID TYPE CONTAINERS

The standard and most widely used of the liquid type containers range from the small oval lubricating oil can to the familiar five gallon square can used for a variety of products. Cans in this group include those used for paint, varnish, linseed oil, metal polish, syrup, olive oil, alcohol, lubricating oil and a number of chemical products. Liquid containers are made with soldered or compound lined seams and are carefully air tested for leaks. Although containing a dry product, the widely used key opener vacuum coffee can is included in the liquid type classification, for it is made not merely liquid tight but sufficiently tight to hold a high vacuum or interior pressure.

DRY PRODUCT CONTAINERS

In the dry product classification is found the widest diversification of size and type of package ranging from the $^1/_{16}$-oz. ointment box to the 50-lb. shipping containers for bulk crackers. In this group are included cans for cocoa, tobacco, crackers, spices, aspirin tablets, coffee, cigarettes, talcum powder, tea, candy, baking powder and various dry drugs and chemicals; also an infinite variety of specialties embracing such items as dental bobbins, lunch boxes, vacuum bottle cases, first-aid cabinets, goggle cases, etc.

Dry product containers may be further classified as being (1) seamless or (2) pieced. The seamless box is one in which the body is drawn or pressed into shape from a single piece of tin plate. Many of the smaller containers such as those used for aspirin tablets, laxatives, ointment and shoe polish belong to this classification. Pieced containers are those in which the body and bottom are made of separate pieces of tin plate pieced or seamed together. Most tin containers whether for a roll of $^1/_2$-in. adhesive tape or for five gallons of paint are of the pieced type.

COVERS AND CLOSURES

The final factor in classifying a container is the type of cover or closure used. The regular slip cover, usually seamless, is so well known as to need little description. It may be made with either raw, hemmed or curled edge, is applied and removed by hand and fits over the top of the body of the container loosely or snugly as may be required by the product contained in the can. Covers of this type are used on many of the seamless type boxes as well as on cans for baking powder, tea, candies, cake, crackers, etc. Of similar type but of different function is the friction slip cover. This cover is made to fit the body snugly, is usually applied by machine and is not removable. Such covers are usually fitted with a sifting dredge for spices, a sifting neck for talcum or other toilet powders, or a screw cap for drug and chemical powders.

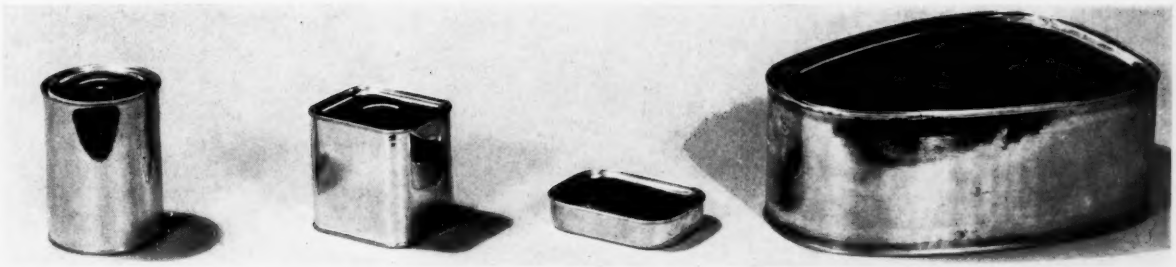
The hinged cover is also quite generally used on oblong and square dry product containers both large and small. Lugs on both body and cover of such a container are clinched over a piece of wire, thereby joining the two members together. Aspirin boxes, tobacco tins and most of the larger size oblong candy containers are made with hinged type cover.

Still another type of cover for dry products is the slide cover. This is confined almost entirely to small oblong seamless boxes for pills or other small products. Automobile tire valve stems and a variety of proprietary pills and tablets are packed in seamless slide cover boxes.

The compression friction top is a type so generally used that every one is thoroughly familiar with it. Although most commonly associated with round liquid type cans, particularly paint cans and pails, it is used on round, oval, square and oblong containers for both liquid and dry products. Its chief function is as a closure to prevent leakage of liquid or sifting of dry powdered product. There are two types of friction tops; the single friction and the "doubletite." As the name implies, the single friction makes contact between the plug and

TYPES OF TIN PACKAGES AND CANS

PACKERS' CANS



Left to right: Round, tall, sanitary can for vegetables, fruits, soups, fish and other processed foods; oblong, tall, sanitary can commonly used for asparagus; oblong, flat, sanitary can, sardine type; irregular sanitary can for whole hams and chickens

GENERAL LINE CANS—SEAMLESS TYPES



Left to right: Round, seamless, slip cover ointment box; oblong, seamless, hinge cover tablet and pill box; oblong, seamless, slide cover box for tablets, etc.

GENERAL LINE CANS—PIECED CANS—LIQUID TYPE



Left to right: Round, pieced pail, with doubletite friction plug and wire bail, widely used for paint; round, pieced pail, with full friction opening and wire bail for oysters, cleaning pastes, etc.; round, pieced can, with single friction plug, for paint and various liquid products; round, pieced can, cone top style with screw neck and cap for metal polish

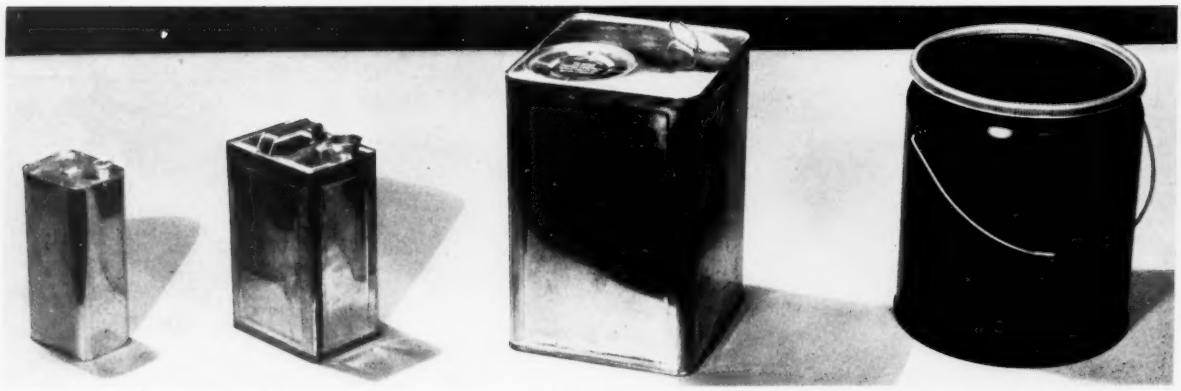


Left to right: Key collar vacuum can for coffee and dehydrated milk; oval oiler with spring bottom and utility spout for household lubrication; round, pieced, sanitary style, motor oil can for use with special dispenser

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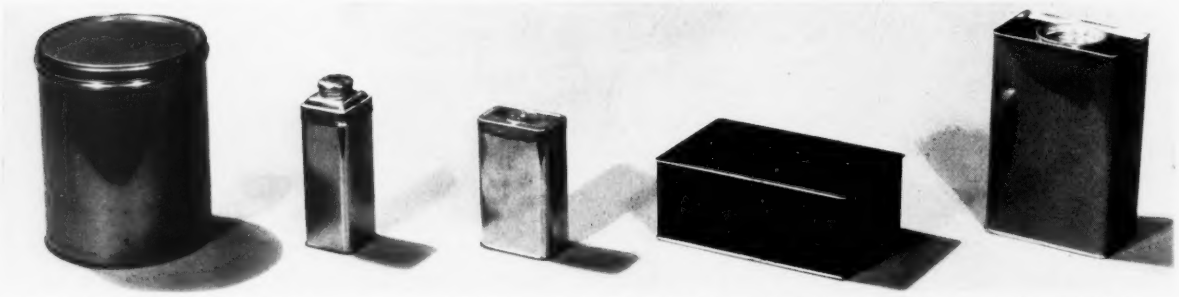
TYPES OF TIN PACKAGES AND CANS *(Continued)*

GENERAL LINE CANS—PIECED CANS—LIQUID TYPE



Left to right: Oblong, pieced can, with screw neck and cap and wire ring handle for edible oils, lubricating oils, syrup, etc.; oblong, pieced can, with nozzle and tin handle, for varnish, shellac, etc.; square, pieced, domestic oil can with single friction opening and wire ring handle; round, pieced pail, with ring seal cover and wire bail, for paint

GENERAL LINE CANS—PIECED CANS—DRY PRODUCT TYPE



Left to right: Round, pieced, slip cover can for crackers, etc. Same type in flat style used for cakes and candy; square, pieced, friction slip cover talcum powder can with neck and revolving perforated sifter cap; oblong, pieced, friction slip cover spice can with revolving sifter dredge. Same type with regular slip cover and without dredge used for cocoa. Oblong, pieced, padded hinge cover candy box; square, pieced, single friction top can for powdered drugs and chemicals

GENERAL LINE CANS—SPECIALTIES



Left to right: Lunch kit, made to accommodate vacuum bottle in cover; vacuum bottle holder; goggle case; spools for adhesive tape; irregular shaped syrup can

ring at one point only, whereas the "doubletite" has two separate points of friction contact. A variation of this type of closure is the full opening friction. In this type the top of the can body is not fitted with a seamed ring and the friction plug fits the full opening of the can body.

All processed foods as well as those packed under gas or vacuum are hermetically sealed in cans having both top and bottom ends double seamed to the can body. The processed food cans are opened with a can opener, the contents usually being immediately consumed and the container discarded. In cans of this type no re-closure feature is needed or provided.

The can for products packed under gas or vacuum is furnished with a key for winding off a scored strip circling the body near the top. A separate ring, or

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collar, of tin is attached to the inside of the top of the can body forming a seat for the slip cover which remains after removal of the scored strip, thus giving these cans a re-closure feature. The vacuum coffee can is an example of this type of container known in the trade as the key collar can.

There is also a great variety of liquid type containers made with double seamed tops fitted with nozzles or threaded necks to accommodate various types of closures as detailed elsewhere in this catalog. Cans of this type are used for edible oils, syrups, varnishes, lubricating oils, alcohol and many other liquid products.

TIN PLATE

Tin plate as used in can manufacture consists of a steel base, rolled from bar form into a thin sheet and coated or plated with tin. The unit of measure for tin plate is the "base box" consisting of 112 sheets, 20 in. long by 14 in. wide. Tin plate is first classified as to the weight of the sheets in terms of pounds to the base box. These weights range from 56-lb. (0.00638 in. thick) to 175-lb. (0.1995 in. thick) plate. The larger the container and the heavier the product to be contained, the heavier is the plate required for the can. The great majority of cans of average size are made of 90-, 95- and 100-lb. plates. Tin plate is further classified as to the weight or thickness of the tin coating, sheets with light coating being designated as "coke plate" and those with heavier coating as "charcoal plate." There are several grades each of coke and charcoal plates. Coke plate is most extensively used, charcoal plate being required only for cans containing a product embodying an oxidizing agent.

METHODS OF MANUFACTURE

Methods of can manufacture may be broadly classified into four groups: (1) hand made; (2) single operation; (3) semi-automatic; (4) automatic. Standard cans used by the trade in large volume are made by the automatic or semi-automatic method, whereas non-standard cans of small volume must be made by hand or single operation methods, as the limited volume would not support an expensive automatic line of machinery. For this reason non-standard cans are more costly to manufacture.

Tin containers may be supplied in plain tin for paper labeling or may be lithographed in any combination of colors from the simplest one color label embodying lettering only, to the complex multi-colored art subjects widely used on tin containers by the confectionery and toilet goods trades. Important advances in methods of lithography on tin have been made in the past few years and many new and effective finishes introduced. Each color of the design is printed separately on the flat sheet of tin plate and baked in a high temperature oven. After the last color is baked on, a protective coating of varnish is applied and baked hard to prevent scratching or marring during manufacture and to preserve the attractive appearance of the finished container.

The actual manufacture of the tin container is only a part of the complete service rendered to the trade by the larger can manufacturers. Expert advice as to type of container and merchandising methods is given by men qualified by years of experience in the container field. Extensive art staffs are maintained to produce designs and to advise with respect to color schemes and all matters pertaining to the decoration of the container. Research laboratories, with staffs of expert chemists, are available for the study of problems of bacteriology, corrosion, product deterioration and all matters pertaining to packaging in tin A large staff of expert mechanics is maintained and is available at any point throughout the country, day or night, on short notice, for the servicing of can closing machinery in customers' plants.

PAPER TUBES

by W. J. Walker

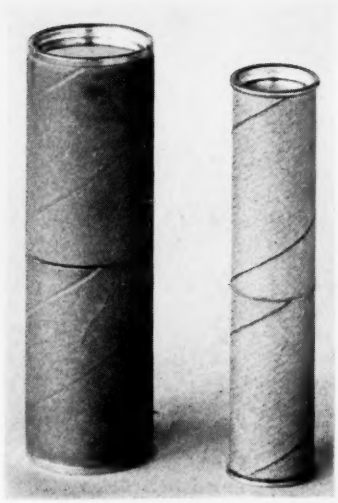
PAPER TUBES are made of any number of different combinations of paper such as kraft, chip and news board, book papers, asbestos and many other types of material. One concern today is putting out tubes made of cloth and sand paper which are formed in the usual way as paper tubes. The diameters run from as low as $^1/_{16}$ in. up to 22 in. and any inside diameter can be held to within .005 in., which allows paper tubes to be used in almost every known field. The thickness can be as low as 0.04 in. up to 1 in. There are two types of tubes manufactured: the spiral wound, which is used most, and the parallel wound. Of the two types the latter is stronger when of equal wall thickness but is usually more expensive.

Tubes made of special dielectric kraft are used for insulation throughout the electrical field and on account of their cheapness have been substituted in a number of cases for phenol resins and even mica. Paper tubes are used as coil forms, condenser containers, light socket liners, candles, etc. In the automobile field tubes are used in a

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Types of paper tubes, spiral and parallel wound



Paper mailing tubes

great many places, such as protecting threaded parts in shipping, covering polished parts in dipping, and, of course, in the ignition systems for insulation. A large use for tubes is in the display field where any number of attractive combinations for window dressing can be worked out. About 80 per cent of all spark plugs manufactured have paper tubes in the ends to protect the gap when set.

Another well-known field is that of rubber goods manufacture where tubes and cores are used throughout production. Tubes can be dressed up with attractive papers on the outside and either printed directly on the tube or labelled. The toy manufacturers have many places where tubes are used. On account of the cheapness and the fact that manufacturers are beginning to realize that they have to protect their articles in shipping, paper tubes are being used in more different combinations than ever before and it seems as though their use in any industry is unlimited.

FIBRE-BODIED CANS

by Arthur H. Grace

THERE is no longer any question as to whether or not a product should be sold in a package but rather there is the question of improving the package for the purpose of creating or increasing the sale of that product. The modern package is a most effective and dependable sales weapon; and it is this trend toward modern, economical packaging that has produced the fibreboard can to meet the demand. Just as the package as a unit of sale has increased in popularity, so has the use of the fibre-bodied can increased proportionately. New and varied can package uses are constantly being introduced until today there is hardly a field in which the fibre-bodied can cannot be used, where the package is a unit of sale.

While usually confined to the packaging of dry products, the fibreboard container also has its place as a temporary container for hot or cold liquids. Generally speaking, there is an unlimited field for the use of fibre-bodied cans in packaging dry products whereas, in the case of liquid products, their use is restricted to temporary purposes only.

To understand correctly the distinction between and the uses of fibre-bodied cans, one must immediately distinguish between the types of can manufactured for dry products and those manufactured for semi-moist or liquid products. For the purpose of this discussion, we will deal only with the dry product container.

Few manufacturers carry any stock of manufactured cans. Specifications vary; and, where labels are involved, carrying a stock would be particularly impractical. Certain round, all-fibre cans—commercially known as "Drug Packers"—are stocked by some manufacturers in assorted sizes, for standard capacities of drugs and chemicals. However, these so-called "stocks" sizes are not necessarily uniform so far as various manufacturers are concerned. Mail cases for bottled liquids are also stocked by certain manufacturers, these cases conforming to postal regulations and accommodating standard Rx bottles.

Fibre cans are sometimes called "paper" cans. This is incorrect. While the accurate technical term

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TYPES OF FIBRE-BODIED CANS



Top row. Metal ends: Square base, screw cap; oval base, crown turn top; oblong base, perforated top; round base, slip on cover; round base, perforated top, slip on cap; square base, round friction top

Second row. Fibre tops: Round base, perforated metal top and slip on cap; round base, solid top; round base, slip on cover; round base, spout top

Bottom row. Metal ends: Oblong base, oval friction top; round base, round friction top; round base, full friction top; round base, perforated top; oval base, dredge top; oblong base, dredge top; oblong base, friction top; oblong base, slide dredge top

would be "fibreboard" cans, custom has established "fibre" cans as the accepted nomenclature.

In looking at any packaging problem, so far as fibre-bodied cans are concerned, the cubical capacity of the package having been established, it is necessary to determine the shape of the package which will best serve the purpose—not only from the standpoint of the nature of the product itself but also from the standpoint of shelf display space, label design and style of top. The next step is whether a metal-end can will be required or whether a fibre-end can will serve the purpose equally as well. Custom establishes rather definitely the shapes and sizes required for certain types of products, unless there is a specific desire to vary this established practice. If an all-fibre can is selected, the shape of the can is restricted, from a manufacturing standpoint, to one of two possibilities, either (1) a round-shaped can, or (2) an oval-shaped can. On the other hand, if a metal-end can is decided upon, practically any shape can be manufactured. While the round-shaped container continues to enjoy an immense popularity, practical usage necessitates other shapes, which are gradually being adopted for various products until today one can purchase a fibre-bodied can in almost any shape desired—round, oblong, oval, square, or obrotund—provided the manufacturer has the necessary body-winding mandrel and dies to construct that particular size and shape.

Few changes of importance have been made recently in the manufacturing processes of fibreboard cans, aside from the fact that speedier and larger machines, capable of producing an increased volume as well as larger sizes of cans, are now available from several manufacturers.

All can bodies are constructed of fibreboard, the kind of board used as well as the point thickness of the body wall being determined by the type of construction desired and also by the nature of the requirements.

Fibreboard is purchased by the can manufacturer in Jumbo rolls, which are slit into so-called "ribbon" widths varying in size from a fraction of an inch to several inches in width. (This width is a manufacturing detail and is governed by the size and the height of the can body.) This fibreboard ribbon is fed automatically onto body-winding mandrel, conforming in size and shape to the customer's requirement, the exact dimensions of this winding mandrel determining the *inside* dimensions of the container, and conforming to the base size and shape of the customer's specifications.

In all cases the height of the can can be adjusted to the individual requirement, subject, of course, to manufacturing facilities available.

To the can body either fibre-drawn caps or metal ends are applied. These two types of ends are not necessarily interchangeable—that is, a manufacturer may be able to supply a fibre-end can in certain sizes whereas, if metal-end cans are required, these same sizes cannot be furnished, due to the fact that construction operations differ. For each can body, winding mandrel cap presses, fitted with drawing rings, are necessary to draw fibre caps for the various sizes of body-winding mandrels, or punch presses, equipped with dies, are required to stamp out metal ends for each mandrel size. Therefore, while it is possible to make a fibre-bodied can in any size specified, unless the manufacturer is equipped with the exact size winding mandrel for the can body and the necessary dies for the particular type of end required, new tools would have to be manufactured before can bodies could be constructed.

Construction of the body being a separate and distinct operation from the construction of the ends (whether fibre or metal), it is necessary to treat each unit of construction separately.

A can body may be one of two styles of winding: (1) spiral or (2) convolute. Each type of construction has its own particular merits; and, in order to make the necessary distinctions, each type of construction will be outlined separately.

CAN BODIES

Spirally wound can bodies are usually manufactured from a fibreboard commonly known as "straw chip." Straw board, straw chip, chip board, news board and test liners are some grades of body stock used as well as manila-lined stock or coated-one-side stock, depending on the customer's specifications or based on the nature of the product to be packaged.

Each can body consists of two or more plies of fibreboard. Each ply being a separate unit permits of variation in the nature of the stock used as well as the caliper point thickness of each ply. Spirally wound cans are usually made from stock ranging in caliper thickness from .008 points to 0.40 points, the total body wall thickness depending on the number of plies of stock in the body and the caliper point thickness of each ply. While manufacture has standardized the usual requirement as to caliper thickness of each ply of board used as well as the number of plies of fibreboard and the total body wall thickness required, all of these may be varied as conditions necessitate. To illustrate: A .024 point body wall can be wound in 3 plies of .008 point body stock, 2 plies of .012 point stock, or 1 ply of .016 point stock and 1 ply of .008 point stock.

Ribbon widths of the fibre used are automatically fed into the winder onto a winding mandrel, the size and shape of which correspond to specifications given. The different plies of fibreboard are wound into a continuous tube form and are held together by the use of various kinds of adhesives. This tube is automatically cut off after having reached a length of about forty inches. The tubes are then cut to sizes corresponding to the height of the container desired, the number of can bodies being determined by dividing the height of the can into the length of the tube. Thus several can bodies are wound at one

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time—which represents one difference between a spirally wound can and one that is convolutely wound.

Spirally wound can bodies are usually made with a so-called "straight" side wall. Where a slip-on cap is used—either fibre or metal—a recess is sometimes provided at both ends of the body, in order that the cap may fit flush with the can body, permitting of smooth hand or automatic label application. This recess is provided in either one of two ways: (1) Jacketed. A portion of the outer ply of the body wall, about $^1/_2$ in. in width, is stripped off the can body; or (2) Necked in. Both ends of the can body are subjected to pressure, about $^1/_2$ in. in width. Thus a spirally wound can body can be furnished with: (1) A straight wall; (2) a jacketed wall; or (3) a necked-in wall. In no case can the body wall be tapered, as only a *straight side wall* can be furnished in any so-called fibre can. Either fibre-drawn caps or metal ends can be applied to these can bodies.

Convolutely wound cans are made from one single and continuous sheet of fibreboard, cut into ribbon widths equivalent to the height of the can requirement. The nature of this board differs from that used in the construction of spirally wound cans in that the quality is usually of a higher grade and the caliper thickness does not exceed .012 points. The stock generally used is can fibre, each manufacturer having his own grade of special stock for this particular type of construction.

One ply is wound directly upon another and each ply is laminated to the other by various grades of adhesives. The winding mandrel conforms in size and shape to the customer's specifications, only one can body being wound at a time. The different plies of the can body are not interchangeable; the construction is definitely fixed by the nature of the stock used—which stock, however, might be a duplex or a laminated sheet, where special body construction is required.

Thus, from a manufacturing standpoint it is more expensive to wind convolute can bodies than spiral can bodies. As mentioned before, a convolutely wound can body can be made in any shape required, whereas a spirally wound can is obtainable in the round and oval shapes only. Also, a convolute can body is more rigid than a spiral body and can be automatically labeled at the time the can body is wound, whereas a spirally wound can body can be labeled automatically only after being filled. As in the case of spiral cans, either fibre-drawn caps or metal ends can be applied to convolute can bodies.

Because of the nature of some products, it is necessary to treat the fibre can body to make it moisture-resistant and to make it capable of resisting body penetration. This can be done in two ways: first, through the use of body liners, and, second, through the use of various preparations.

Various kinds of liner papers can be used, the exact stock to be used depending on the requirement. Glassine, parchment (genuine or imitation), greaseproof, kraft, metal foil, and others are used for liners to furnish resistance to body penetration. Gelatin, paraffin, asphalt, rosin, and other similar substances may be used to make the container moisture-resistant. These materials may be used between the plies or may be applied to an individual ply at the time the body is wound. The can bodies may also be treated through other processes, such as dipping, spraying, or impregnation of fibre before or after winding.

While the selection of a spirally wound can may prove a disadvantage because of the restriction to the round or oval shape, a distinct advantage of this type over the convolutely wound container is the fact that various kinds of liner paper can be automatically wound into the can body at the time the cans are manufactured, the liner being applied to the mandrel first and forming the inside ply. In a convolutely wound can the liner must be laminated to the body stock before being wound, the liner encircling the can body the same number of times as there are plies of fibreboard in the can body. In this respect, as above stated, the spiral can has a distinct advantage over the convolute can.

Where body treatment is required, consideration must also be given to treatment of the ends of the container. Fibre ends can be given much the same treatment as fibre bodies, as outlined above; but when metal ends are used treatment is rarely necessary except for special conditions.

CAN ENDS—FIBRE

From a manufacturing standpoint, can bodies fitted with fibre-drawn ends are restricted to two shapes: round and oval.

Fibre ends are drawn from cap stock (so-called) especially made for the purpose. The nature of this stock differs from the body stock and the caliper thickness varies from .020 to .040, the size of the container governing the caliper thickness of the stock used. Cap stock may be obtained in various standard colors.

Caps are drawn under pressure, moisture and heat, the size of the cap conforming to the size of the can body wound. Varying atmospheric conditions tend to affect fibre caps when drawn, unless immediately applied to the container body upon completion of manufacture.

One end is usually glued onto the can body and the other slipped on loosely, to be replaced after the container is filled. An identifying mark on the can body usually indicates which end has been glued on.

Fibre caps may be embossed when drawn with various designs of embossing, where embossing dies have been made. When body treatment is required, it is usually necessary to treat the fibre caps also. As has been previously stated, this may be done in much the same manner and method as described under the body treatment. Caps may be lined with

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various types of paper to afford resistance to penetration by laminating the liner to the cap stock before the caps are drawn; or caps may be treated with paraffin, gelatin, rosin, asphalt, and other preparations to secure moisture resistance.

CAN ENDS—METAL

Metal ends are stamped out in sizes to fit the can body, one end usually being seamed on (or crimped on) to the body. The other end is shipped separately, to be slipped on or seamed on after the product is packed.

Metal ends are usually made from tin plate, which may be plain, coated, or lacquered, one side or two sides, depending on the appearance desired. Metal ends can be embossed, where dies are made, at the time of stamping out.

Where large quantities of cans are involved, seaming machines are usually furnished to the customer by the manufacturer, on a yearly contract rental basis. Where small quantities are involved and both ends are to be seamed on (closed), a small friction opening is left in the bottom of the can, through which the can is filled and the opening closed by a metal plug—which operation is performed after the container is filled.

Because of the nature of the product packed, some metal-end containers must be sanitary-lacquered inside. This protection can be given, where required.

FITTINGS

The use of fibre-end cans is also restricted in that few types of fittings can be furnished with a fibre top. Aside from a solid top, the most commonly used fibre-end can is the spout top on a salt can. A perforated top or a perforated undercap can be supplied as well as a metal plug top; however, their usage is quite limited.

Various types of fittings have been devised for metal-end cans, certain fittings being standard for certain types of products.

LABELS AND WRAPPERS

The question of when and how the can is to be labeled should receive attention when consideration is being given to the type of construction desired or required. For obvious reasons, practically without exception, all labels are furnished by the customer but are made up in accordance with specifications furnished by the manufacturer. The can bodies cannot be printed or lithographed.

Decorative papers can be used as wrappers for the outside ply of spirally wound cans. These papers are usually furnished in roll form, are slit to ribbon widths and are applied to the can body in continuous form.

Printed labels for spirally wound cans, when supplied by the customer and applied by the manufacturer, must be hand applied—either singly or in strips. When in strips, the labels are applied to the tube form after the body is rolled but before the ends are put on. The number of labels to the strip is determined by the number of can bodies wound in tube form at one time.

Up to the present time no machine has been invented which is practical for the automatic labeling of an empty can. Printed labels, however, can be automatically applied to cans after filling—which operation is advantageous in the case of certain types of cans—and particularly so when the same type of can is used for packaging a number of different products.

Convolutely wound cans can be automatically labeled at the time the can body is wound. Whether a decorative or printed label is used is immaterial so long as the nature of the stock does not conflict with manufacturing specifications. Labels for cans of the convolute type of construction are furnished singly, cut to size.

The paper stock used for labels in all cases should conform to a uniform basic weight, not heavier than 25 × 38–60-lb. stock, and ungummed. Coated-one-side litho label or any plain finished book paper will serve the purpose.

Any design or color may be used in printing labels. They may be plain or varnished, just as long as the size and specifications conform to the manufacturer's layout, which will be furnished without charge.

PACKING AND SHIPPING

Local freight shipments necessitate cans being packed in standard fibre shipping containers, varying in size to accommodate the wide range of sizes and styles manufactured. The number of cans packed in each container varies although, generally speaking, large-sized—in some cases, over-sized—containers are used because of the light weight involved. Naturally the smaller the number of cans packed to a container, the larger the number of shipping containers required—which increases packing costs.

Sometimes a special container pack is required. For example, where it is necessary to pack for reshipment. This operation involves special containers. In carload shipments, cans can be packed in fibre shipping containers, but the most economical way is to pack in large heavy kraft paper bags.

The time required for the manufacture of cans varies with different manufacturers. Generally speaking, a week or ten days is sufficient time to produce any order—although there are cases when a longer period of time may be essential.

As has been previously outlined, where the packaging problem is involved there is hardly a dry product that cannot be successfully packaged in a fibre-bodied can. Many of the skeptical have been convinced, not only of the practical usage involved, but also of the very definite economies to be accomplished and the noticeable improvement over past packaging methods.

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SPECIAL AND FANCY PAPER BAGS

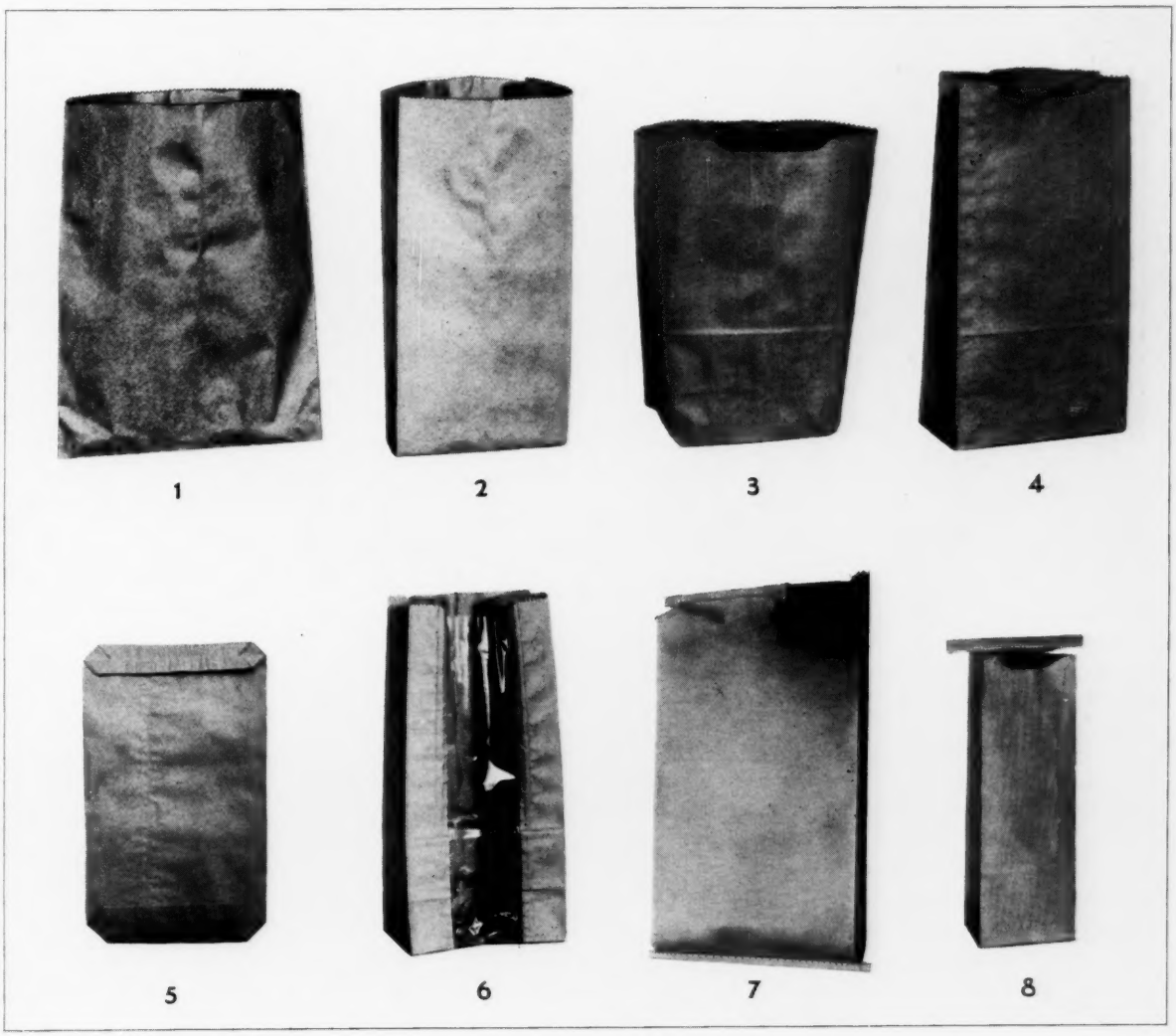
by H. S. Daniels

LIKE every other style of container, special bags have practical limits to the fields in which they may be used. But their convenience and economy is steadily extending the boundaries of those fields, and each month sees a special bag being developed for some product that has never before considered a "paper bag" as a possible package. The improvement in range, styles, materials and printing facilities available in special bags has naturally done much to widen these fields.

There are four major services that a special, made-to-order paper bag is well adapted to perform:

1. An attractive, *economical*, retail package.
2. A protective covering—sometimes an insulation.
3. A measure, or convenience unit.
4. A means of identification for products not easily trade-marked or branded upon themselves

Any manufacturer who has one of these four problems to contend with may well investigate the possibilities of *a tailor-made* bag to give him the most economical answer. It is seldom that the four groups are drawn sharply; usually a special bag combines several of these services at the same time.



GENERAL STYLES OF PAPER BAGS

1. Flat bag with straight plain bottom. 2. Square bag opened with bottom formed. 3. Satchel bottom bag. 4. Automatic shape bag. 5. Valve bag, pasted top and bottom. 6. Combined bag, automatic shape. Transparent cellulose and kraft. 7. Valve bag sewn top and bottom. 8. Automatic shape with tin-tie closure

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The package that is needed as a measure, for example, can increase sales by being designed as an attractive retail package, and can protect the contents against deterioration by having a waxed or glassine liner. Nor do these four groups represent the entire range of special bag uses, by any means. But they are the most common requirements that have created made-to-order bags, and as such, a few examples may be of interest.

Retail Packages: The trend toward smaller kitchens and less pantry shelf-room in our homes naturally results in a demand for smaller, prepacked units of many products formerly sold in bulk, or in large packages. Flour, coffee, rice, sugar, etc., are all going into smaller and smaller packages. Recently the "10-cent size" has gained much popularity. Attractively printed, *duplex* fancy bags offer the ideal means of adding much smaller units.

In the chemical field, insecticides, fungicides, paints (calsomine and dry colors), cleaning powders, patching plaster, etc., have all adopted a retail household-size unit.

Protection: Dry goods and textiles, such as shirts, blankets, gloves, diaper cloths, etc., are protected from soilage until the purchaser himself breaks open the package. The elimination of shopworn "seconds" more than pays for such protection, without considering the added prestige and sales-incentive that individual wrapping always gives to any product. Top-quality fork, hoe and axe handles, canoe paddles and baseball bats also use special bag protection against soilage—and combine this protection with the opportunity for trade mark identification and display. Two outstanding examples of the *insulation* service are (1) the bag used to cover blocks of dry ice (which is too cold to touch with the bare hands) and (2) the duplex asphalt paper bag liner for egg cases which, by retaining the CO_2 gas in the case, so helps to preserve the freshness that eggs so packed bring from one to four cents a dozen premium in the markets where official grading is required. Still another form of protection is the wax-lined bag in which your laundry returns the "damp dry" portion of your wash—the bag retaining the moisture until it is convenient for you to iron the pieces.

Measure: In the drug and chemical fields, particularly, paper bags have been designed to serve as exact measures for contents that must be mixed before using. An example of this is the insecticide bag, where the amount of the contents is in exactly the right proportion for a given amount of water, and it is only necessary to break the entire bag into whatever quantity of water the directions (printed on the bag) call for. Another very popular "measure" use is the coffee bag for restaurant trade. The bag is designed in the proper size for a given blend of coffee so that the whole bag may be dumped into the tall nickel urn full of water. Such "measure" bags make the proper proportioning of the product foolproof, even though an illiterate laborer mixes his own insecticide and the janitor prepares the early batch of coffee.

Identification: Maybe you have purchased a wrench lately and wondered where it got any protection from being packed in a special paper bag. But while you were wondering that, you were reading the trade mark of that particular wrench, and possibly some advertising matter that was printed on the bag. Paint brushes and cooking utensils are other examples of products that do not provide surfaces suitable to trade mark or advertising printing, and so are packed in special bags which can be so printed.

More necessary from a practical standpoint is the special bag that has been developed for containing and identifying machine parts. Sturdy kraft bags, equipped with a tin-tie (which permits repeated opening and sealing) and printed with the name or number of the part they contain, are saving time and loss in the assembly plants and service stations of most of the large automobile companies today. Typewriters, vacuum cleaners and electrical equipment are all finding the printed parts-bag equally convenient and economical.

The foregoing is in no sense an attempt to cover the field of special paper bag uses. It touches only a few scattered examples in an attempt to illustrate the very fact that these uses are extremely widespread. Probably your particular product hasn't been mentioned, but it is entirely possible that a special paper bag has been worked out for that product, and is today being used somewhere in the country.

In any event, the rapid development of bag making and printing equipment, and the knowledge that a special bag is generally much less expensive than any other form of container, makes it advisable for any merchant to call in a special bag engineer who knows his business, and let him go over his packing set-up. The bag engineer knows better than to recommend a bag where it won't do the work, and he may know of a type of bag that will do it at considerable saving over present methods.

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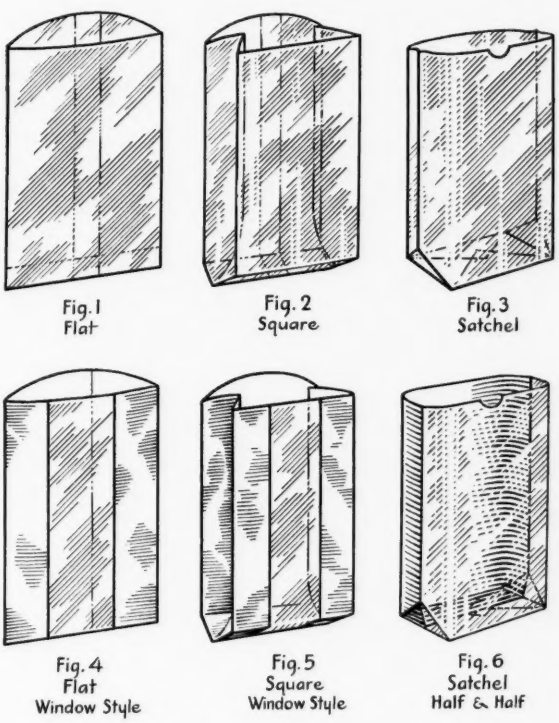
TRANSPARENT BAGS

by Gordon H. Friend

TRANSPARENT packages within the course of a few years have exercised a powerful influence upon the merchandising methods of many products. In some cases it has changed the very fundamentals of retail selling and opened new outlets for products where old markets had long ago reached the saturation point.

In the beginning, transparent bags met with stubborn resistance in every new field—always because of price; but one by one the butchers and the bakers capitulated to the new idea, only to find that the extra cost meant nothing. Mark-ups were adjusted to cover the additional costs, and still sales would frequently double and even treble.

With the steadily increasing use of transparent wrappings came the overwhelming demand for printed cellulose bags made to fit special requirements. New printing presses were designed to handle this material; bag making equipment was redesigned and rebuilt; bag filling and closing methods were changed. Step by step these problems have been met and solved. Especially during the past year much progress has been made in overcoming the limitations of printing and converting transparent cellulose into bags. Likewise production managers have discovered new methods of more rapidly and economically filling and closing these packages, and as a result of these new developments, more and more manufacturers are finding a bag to be the practical package for an increasing variety of commodities.



General types of transparent bags

Transparent bags are divided into three major style classifications: flat, square and satchel bottom. Figs. 1, 2 and 3 illustrate these styles. Each of these three styles may be again divided into two subclassifications: full transparent (a bag made entirely of cellulose) and window style (a paper bag having a strip of cellulose inlaid on the face of the package). The materials used may be plain, moistureproof or heat sealing transparent cellulose.

Flat bags and bags with tucks are available in an almost endless variety of styles and shapes, ranging in size from a flat bag small enough to contain an aspirin tablet, to a square bag large enough to package a woolen blanket. They may be made of a single sheet of cellulose either plain or moistureproof, or they may be double-walled (duplex). They may be printed in any size and any manner from one color on the face only to four colors in an all-over pattern.

Satchel bottom bags are used extensively by confectioners for packing bulk items, candies, nuts, etc. They are especially desirable for packaging dry groceries; rice, beans, peas, dried fruits and countless other bulks. Among the miscellaneous items packed in satchel bottom bags we find such products as grass seed, sea shells, cigar clippings and doughnuts. The outstanding advantage of the satchel bottom bag is its flat bottom, enabling the package to stand in an upright position when packed.

Cardboard inserts are frequently used to give added rigidity and shape to the top and bottom of the package. Gummed seals are then applied to both ends to lend a finishing touch to its appearance. Until recently it has been necessary to insert these cardboards by hand at the time of packing; however, cellulose satchel bottom bags are now available with "built-in" cardboard bottoms.

The idea of making double walled or duplex bags is an old one, but has been applied to transparent bags only within the past year or two, due to manufacturing difficulties.

The use of duplex bags has arisen almost entirely through a requirement for additional protective qualities. It has, therefore, found wide favor, particularly among packers of food products. In many cases, however, the packer specifies the cheaper plain cellulose for the outer sheet—a maneuver which almost defeats itself where protection is the object. The unusual hygroscopic characteristics of plain cellulose may cause shrinkage or expansion which

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will spoil the appearance of such a bag. To get the full benefit of a duplex bag, both sheets should be moistureproof cellulose. Secondarily, the need for extra strength has promoted the use of duplex bags.

Flat bags are seldom made duplex because they are invariably used for packaging small light articles.

Square bags and satchel bottom bags lend themselves readily to duplexing. The construction of these packages permits the manufacturer to print on the inside surface of the outside sheet—a procedure producing a lustrous effect which cannot be matched by any other method of printing.

Another minor point in favor of duplex bags is their superior rigidity. This in many cases speeds up packing, handling, and enhances the value of the bag as a display piece.

Combination or window bags continue to expand their field of usefulness where visibility and economy are essential requisites. There are countless papers that may be fabricated with transparent cellulose and converted into bags in any of the three major styles. Moistureproof papers are used with moistureproof cellulose to give complete moistureproof qualities to the finished package. Likewise ordinary papers are used with plain transparent material where keeping qualities are not important. The width of the window may vary from a narrow strip of cellulose in the center of a bag to a wide strip spanning the entire front. It is sometimes extended to cover the front and sides providing only a narrow strip of paper on the extreme back of the package.

Bags of the window type lend themselves beautifully to printing. Unusual and striking effects may be obtained by using brilliantly colored papers and contrasting inks for printing. Window bags are preferred by many packers not only as a measure of economy, but because they are easily opened and filled, and because less care is required in storage to keep them in good condition.

Printing on cellulose bags is no longer in the experimental stage. It is possible as well as practical to print on cellulose anything that one might expect to obtain on ordinary paper, in color combinations up to four colors, and with the use of process plates and inks, the possibilities are extended to compare with the full color pages of present-day magazines.

Automatic bag filling equipment has reached a new level in perfection. Filling machines are now available for every type of bag, production in bag filling equipment reaching as high as 120 bags per minute.

TEXTILE BAGS

THE term "textile bags", as the name implies, refers to bags made from textile or woven cloth of one kind or another and is used to distinguish such bags from bags made of paper. Textile bags may be made from any kind of woven material, although practically all are made from cotton or burlap goods.

Textile bags are peculiarly appropriate for packaging certain commodities, just as bottles, collapsible metal tubes, cans and cartons have fields they are particularly fitted by their nature to serve. Textile bags are particularly adapted for use as containers for powder and granular products, such as flour, sugar, table salt, ice cream salt, soap chips and powder, and various chemicals. They are also used to advantage in packing vegetables such as beans, rice, potatoes, and onions.

The use of cotton and burlap bags for packing potatoes for retail sales has increased tremendously during the past two or three years. Potatoes were formerly received by the grocer in bulk in burlap sacks. He sold them to his customers in paper bags by the peck or pound. The method used today to an increasing extent is the packing of 15 to 25 lbs. of selected potatoes in small cotton or burlap bags.

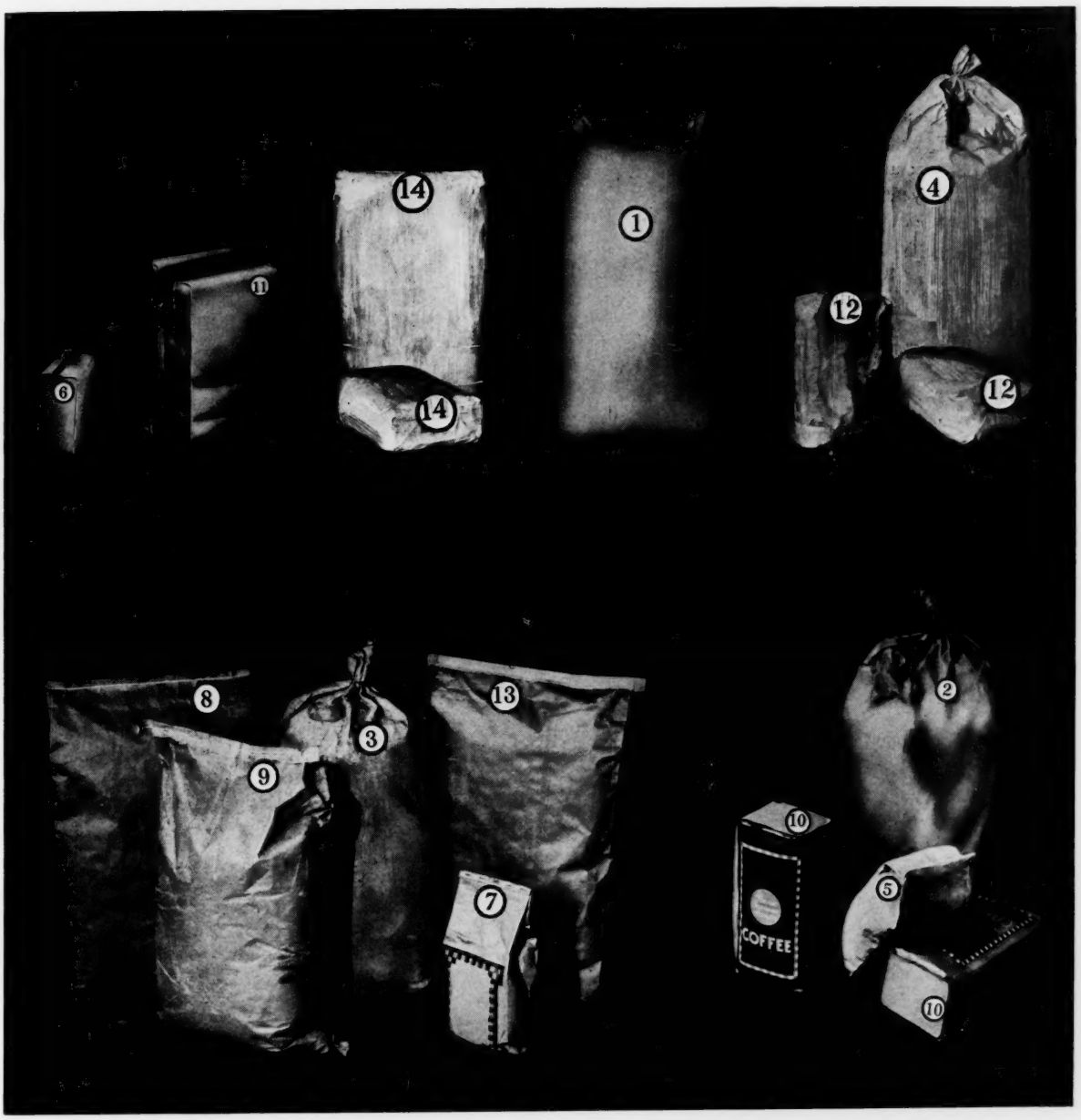
Advertising value: Brands, trade marks, and other advertising matter may be printed on textile bags in various bright colors in a similar manner as is done on other types of containers. Art departments are maintained by large and more progressive textile bag manufacturers where brands are designed without charge to the customer

Textile bags light in weight, yet strong: Textile bags are light in weight compared with most containers, and this means a saving in tare weight on every shipment, thus effecting a permanent saving in freight charges. In spite of the light weight they are amply strong to carry the contents safely to their ultimate destination. They stand the strain under the usual shipping conditions encountered. They do not break or fall to pieces if by chance they fall or are dropped.

Textile bags flexible: Due to the soft cloth from which bags are made they are flexible and adapt their shape to the place in which they are stored. They pack together compactly, saving valuable storage space. The maximum amount of goods may be stored in the minimum amount of space. Empty bags require little storage space as they are bundled in compressed bales. The flexibility of bags makes them easy to handle and they are preferred by shippers and carriers for this reason.

Textile bags have utility after being emptied: Cotton bags when used as containers for retail packages appeal to housewives, as the sturdy piece of white cotton cloth of which the bags are made may be used as a dish towel, dust cloth, or vegetable bag. Burlap bags always have a good salvage value, as they can be used again for packing commodities of low cost not requiring new containers.

TYPES OF BAG CLOSURES



1. *Hand Sewed (thread). Used only on textile bags. Not tamperproof.*
2. *Hand Tied (string). Used on both paper and textile bags. Not tamperproof.*
3. *Wire Tied. Used on both paper and textile bags. Requires use of a hand tool to apply.*
4. *Hamer Closure. Used on both paper and textile bags. Requires machine to apply metal ring clamped around bag.*
5. *Metal Tie (folded). Used principally on paper bags. Usually applied by hand.*
6. *Metal Clip (crimped). Used only on paper bags, especially transparent cellulose or similar thin grades. Requires tool to apply.*
7. *Wire Stapled. Used only on paper bags. Requires machine to apply.*
8. *Machine Sewed. Used on both paper and textile bags, requires machine to apply. Tamperproof.*
9. *Bates Valve. Used principally on paper bags. Bag closed before filling, machine required to put commodity into bag through valve opening.*
10. *Hesser Seal. Used only for paper packages. Formed from flat sheet by special machine into bag, which is filled and closed by folding open end and sealing with label pasted over folded end.*
11. *Allison Seal. Used only on paper bags. Requires machine to apply.*
12. *Delta Seal. Used only on paper bags. Requires machine to apply.*
13. *Duvall Closure. Used only on paper bags, especially large sizes with multiwall. Requires machine to apply. In combination with machine sewed snake stitch this closure is stronger than the walls of the bag.*
14. *No. 83 Closure. Used only on paper bags, especially small sizes. Requires machine to apply.*

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COLLAPSIBLE METAL TUBES

by Frederic Remington

DURING 1933 a number of important changes took place in the collapsible tube field which should be of material assistance to this form of container toward the opening of new markets for which collapsible tubes are adequately fitted.

During the year a decided growth in the use of molded caps was apparent throughout the industry and it is safe to say that probably 80 per cent of the tubes made in pure tin and aluminum and about 40 per cent of the lead alloy tubes now have molded closures. Two molded "captive caps" were introduced during the year to the general market and considering the difficulties in introducing such devices, it might be noted that they received a very favorable acceptance among the trade generally.

The Collapsible Tube Manufacturers' Association agreed to draw up standards of weight, wall thickness and shoulder thickness for the benefit of the entire trade and these standards will probably be in general use by the time the PACKAGING CATALOG is printed. In addition to this there will be a tendency to standardize on neck sizes and cap sizes so that these would be uniform if purchased from any collapsible tube manufacturing company.

The users of clipless closures have increased and the trend toward the use of pyroxylin lacquers or protective coatings has shown a still further use to the extent that such finishes have practically superseded the so-called alkali proof varnishes.

The stimulation of such contests as those held by MODERN PACKAGING in the All-America Twelve package competition have produced a number of new and excellent designs for the collapsible tube industry and modernization of old tubes is continuing at a very satisfactory rate for both tube purchaser and tube manufacturer.

It is particularly interesting to note the simplicity of the newer tube designs and the elimination of endless amounts of reading matter which formerly appeared in the directions panel of collapsible tubes. This is proof that the manufacturers of tubed products are convinced that the public seldom takes the pains to analyze the directions printed on tubes or cartons. The shorter and more pertinent directions and reading matter are more easily and quickly read and are far more effective than the complicated instructions which are seldom followed. In fact, many of the new tubes which have been designed in 1930, 1931, 1932 and 1933 are without any directions, these being incorporated in the design and the entire effectiveness being brought to the fore of the design itself.

New food products show increased sales in collapsible tubes and are slowly but surely calling public attention to the use of collapsible metal tubes in this field. If sales statistics could only be published of such products in tubes, unquestionably the American trend would be as great as the European, where today over 125 food products are packed in collapsible tubes.

Almost any type of decoration can be placed on a collapsible tube and the reproduction of accurate color effects can be held in large quantity runs, and basically this work can be done up to four colors and with ten or eleven shades resultant from screen work if desired. Great strides have been made in the development of resistance for protection against alkalies and other materials which might attack the enamel on the tube and more striking colors are being used in the modernization of tube designs by most of the larger accounts.

A classification of collapsible metal tubes may be summarized as follows:

1. Pure tin tubes, made of new virgin tin, alloyed with a small amount of copper or other suitable stiffener, in minute quantities. No adulterant such as lead or other soft metals is used in these tubes and they are essentially for use for any product going on or in the human body.

2. Aluminum tubes, admirably adapted for uses similar to tin, with the additional advantage of extreme light weight. A slightly stiffer tube than tin and normally competitive or a trifle cheaper than tin. Aluminum tubes require some research in the adaption to certain products, particularly those containing alkalies, but in general they cover the same field as tin tubes.

3. Lead tubes, known as lead alloy tubes, made of pure lead with antimony or tin and antimony, and chiefly used for adhesives, shoe creams, rubber cements and articles where the contents will not be used on the human body.

4. Tincoated tubes, having a lead alloy base with an even distribution of thin coating of tin on the inside and the outside, made in such a manner that the two metals cannot be separated. These are the heaviest weight tubes and seem to be declining in volume steadily in the collapsible tube field to the substitution of the other three types, as their scrap value is exceptionally low to the tube manufacturer and the final appearance is not as good as pure tin or aluminum.

Standards of manufacture and tolerances are being held to closer limits than ever before by the manufacturers, and quality is the outstanding watchword in the entire industry today. With increasing facilities for prompt delivery the purchasers of collapsible tubes are more than ever assured of prompt service of a high quality package.

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The year 1933 is marked by decided increase in the price of tin to such an extent that the raw material used in tin collapsible tubes has been slightly more than doubled in value. The lead market has also advanced so that purchasers of either type of tubes should be prepared to appreciate the fact that higher prices are inevitable in this field. However, it is interesting to note that such prices have not yet reached 1929 levels as manufacturing prices have been increased in efficiency so that basic prices are still better than the levels of earlier years.

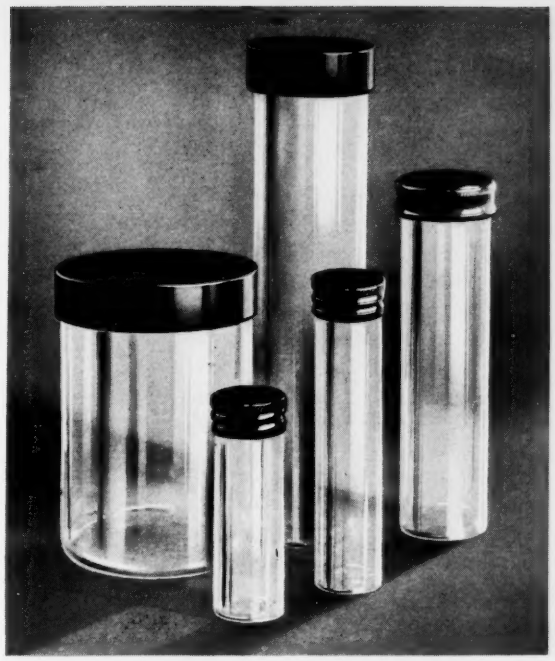
Particularly for the benefit of new users, to the previously published summaries should be added that the average public is familiar with collapsible tubes and knows how to handle them, and that their steadily increasing production indicates growing favor.

SEAMLESS TRANSPARENT CONTAINERS

THE past year has seen a number of new developments in seamless cellulose containers and the use of these products is growing rapidly. Seamless cellulose containers are now available in the following forms: Vials, bottles, jars, collapsible tubes, and specialties. In addition, several novel products have been introduced, one of the most interesting of which is a "Puffer" dispenser for powders which sprays the contents of the package by a bellows action when the "Puffer" is squeezed. This is made possible by the flexibility of the cellulose wall which causes it to spring back to its original shape after it has been depressed.

The use of seamless cellulose containers is also being extended to the manufacturers of feminine hygiene applicators and other products of a similar nature. These applicators are rapidly replacing glass and are being used by the largest manufacturers of feminine hygiene products.

Among the many advantages of seamless cellulose containers are their light weight and the fact that they are unbreakable. These containers are available in an unlimited number of colors and make an unusually attractive package for this reason. As



Types of seamless transparent containers

transparent containers they supplement glass most advantageously for many purposes. Cellulose containers can be decorated to the same extent as is possible with collapsible metal tubes. This fact frequently makes the use of labels unnecessary.

The increase in the use of seamless cellulose containers is most interesting and the variety of their application extends greatly from year to year. Among the more important products packaged in these containers are ointments, creams, pastes and unguents, styptic pencils, dental floss, tooth brushes, pencil leads, pen points, and pills and tablets of all kinds.

Where extreme accuracy of dimension is required for any reason, these containers can be produced in very close limits. While it is true that the application of cellulose to the packaging of many products is still somewhat limited, nevertheless its use is expanding rapidly and must be considered an important factor in the packaging field.

MOLDED PLASTICS

THE place that modern synthetic plastics occupy in packaging today is a large one, and these versatile materials have definitely established themselves as basic packing materials along with paper, wood, glass, metal, etc. They should be used not necessarily as substitutes but as new materials, possessing new properties and possibilities and offering a wide opportunity for merchandising ideas.

Molded synthetic plastics comprise several groups of compounds with varied characteristics, differing in textures, translucency, depth of color, etc. To the layman, however, all look more or less alike, and are considered as a single group.

Plastic materials made by an increasing number of manufacturers in the compound field here and abroad may be classified in three general groups: phenol-formaldehyde plastics, urea-formaldehyde plastics, celluloid or cellulose acetate.

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PHENOLIC PLASTICS

by H. S. Spencer

PHENOLIC plastic compounds are of chemical foundation and are molded or formed under heat and pressure, the manufacturers supplying material in a powdered form to those equipped to make it into the finished closure, jar or box by what is known as the hot press molding system. This work is done by organizations specializing in molding and known to the trade as custom molders. Up to the present time, no manufacturer using phenolic materials in packaging has attempted to do his own molding, which is a specialized undertaking requiring rather expensive equipment and technical experience.

The trend to phenolic plastics for various packaging items lately has been very pronounced. The public has always liked bottle caps and collapsible tube closures made of these materials, and therefore packers have found them advantageous at the point of sale, as well as extremely practical in the packing procedure. Molded cream jars, boxes, display stands, compacts, lip sticks, trays for manicure ensembles, etc., all have very definite advantages. Their wide adoption is also due to the beauty of the material itself, the permanent lustre of its surface, the elimination of finishing or polishing operations, the accurate threads and details obtainable, the wide range of colors and the non-brittle qualities of the material.

One of the outstanding advantages in connection with molded closures for collapsible tubes is that the closure does not leak nor do the contents cake or discolor in the mouth of the tube, thus throwing the often fatal strain on the tube's weak spot, the wall at the shoulder. Molded tube caps are often used without cork liners.

While manufacturers are alive to the appeal of color and the vogue of colors now reaching into every phase of merchandising, it is not color alone that prompts the use of the phenolic plastics.

Phenolic plastics are not affected by acids, alkalies and similar reactives. They do not rust or corrode in contact with certain pharmaceutical products nor do they discolor the contents of the container. Therefore these closures are suitable for whiskey and gin bottles, and a special grade of material that is odorless is manufactured by one concern for this purpose. In the form of caps phenolic plastics are easily gripped and screw down unusually tight and yet are always readily released. Their threading is stronger than the alloy metals and does not strip. They are light in weight, and have an advantage in carriage convenience.

In group packaging phenolic plastics are particularly fitted for the permanent tray or box for refill purposes. They make excellent display stands, cream jars, vanity cases, powder containers and hundreds of different types of boxes. They make unusually attractive reuse containers, and manufacturers have adopted them for belts, garters, suspenders, etc., with an after-use for cigarette containers, ash trays, etc.

The material, because of its fine lustrous appearance, color and design possibilities, resistance to atmospheric conditions and ability to effect a tight seal, has been used widely for the highest grade cosmetics. Manufacturers of foods, candy, shoe dressing, have also found these materials valuable in the packaging of their products.

The design possibilities of phenolic plastics are unlimited and boxes of almost any design or shape, no matter how intricate, can be made, often at no additional expense.

Phenolic compounds permit manufacturers to have their own individual closure, bottle cap or container made, for the material lends itself to all types of design, imprinting and similar treatments, as any trade mark or design engraved in the hardened steel molds reproduces faithfully on the molded piece.

The material has also been widely used for distinctive talcum box caps, sprinkler bottle tops, inside thread caps, and for applicator caps, etc.

Non-hydroscopic cream jars or light weight and design possibilities beyond those usually found in materials for this purpose have recently been offered by manufacturers of phenolic plastics. They cannot crack, swell or bind. These newer materials are offered in lighter and more delicate colors including pastels heretofore unobtainable.

Phenolic resinoids also include a group of transparent materials of limited adaptability and are supplied as solid blocks and rods which are machined or turned as in the manufacture of pen holders, pipe stems, etc. The materials of this phenolic group are manufactured by:

Bakelite Corporation under the trade name of Bakelite; General Plastics, Inc., under the trade name of Durez; Resinox Corporation under the trade name Resinox.

UREA PLASTICS

by Dwight Cook

UREA plastics are furnished in granular and powdered form to custom molders. Molds are constructed of hardened and ground steel, the gloss of the finished piece being determined by the "degree of finish" of the mold. Pressure of 2000 to 10,000 lbs. per sq. in. of projected area and heat of 280 to 320 deg. F as developed in the steam jacketed mold causes the powder to flow. The cure or the length of time the piece is in the mold depends upon its size and conformation.

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Properly constructed molds and the right curing cycle will result in obtaining perfect moldings.

The trend in the last eighteen months to the use of urea moldings in the packaging field has been most pronounced. More eye appeal and increased salability were necessary, and these were accomplished through better design and the generous use of color. Starting from a translucent neutral white base, pigmentation is easy and beautiful colors and shades are possible. The colors are highly translucent and there is a depth and liveness about them that has a distinct appeal.

Urea moldings are insoluble and inert, resistant to greases, oils and solvents. They have no taste or odor and there is little or no tendency to show a dirty or greasy surface with constant handling. There is a "nice" feeling to the surface, no corrosion.

There is a wide range of standard colors and shades from which 90 per cent of all moldings are made. The colors are sufficiently light fast for all practical purposes, and where it is necessary can be obtained completely sun-fast.

The ureas have been widely used for tube and bottle caps. They give a distinctive attraction and the small spot of color sets off the tube or bottles. Rouge boxes, lip stick holders, cream jars and the other thousand and one items in the cosmetic field have advantageously been designed in this material.

The re-use container field is another large one and the pioneers who have used urea moldings here have been well repaid. Fruit cake, candy, glazed fruit, stockings, razors, are indicative of the wide diversification here. Displays made from this material are too good looking to be kept on back shelves. One dye house increased its sales 1500 per cent by a translucent ivory display stand.

Manufacturers of urea materials are Synthetic Plastics, Inc. (Beetle), Toledo Synthetic Products, Inc. (Plaskon), Unyte Corporation (Unyte).

CELLULOSE ACETATE

CELLULOSE ACETATE colloided with suitable plasticizers, pigments and solvents to insure a homogeneous, tough, plastic mass forms a molding material of great adaptability for colorful packages or containers. This unique molding material requires no special treatments such as a hardening bath, curing or subjection to high temperatures to complete condensation or polymerization reactions. Heat and pressure are required merely to mold the material into the desired shape. Waste is eliminated as scrap or flash is reworkable.

Cellulose acetate molding material offers an unlimited color range to the designers of containers. These can be molded of transparent, translucent or opaque materials. Beautiful mottle effects are also available. The imitation of marble, onyx, jade and other valuable materials is so close that only an expert can detect the difference.

Containers or packages molded of cellulose acetate molding compounds are practically non-inflammable, are tough, resilient and resist breakage, are light in weight, uniform, tasteless, odorless, sanitary, non-corrosive, non-injurious and do not deteriorate or fade with age.

The most prominent manufacturers of the cellulose acetate group are Eastman Kodak Co., Celluloid Corporation and Du Pont Viscoloid Company.

METAL DIE CASTINGS IN PACKAGING

by J. J. Maloney

DIE CASTINGS are new-comers in the packaging field but the possibilities of the material and the method seem to foreshadow striking uses. The accompanying illustrations stress the decorative possibilities and also point the direction of further strides that will no doubt be made in the future by combining zinc die castings with molded products and various of the older packaging materials to achieve unique effects.

At the outset it should be stated that costs are greatly dependent upon quantity, and may be surprisingly low when package items go beyond the 10,000 class. Wall sections (as in the Hickok Belt boxes) can be made very thin, and still be of high strength due to the casting process. And the possibility of combining with the molded plastics, as in case of a zinc die cast top and a molded bottom to a box, offer a most striking combination of plated metal and colored plastic. The color, of course, can be obtained by the application of lacquer on the all metal box.

You are familiar with "sand" casting— a wooden pattern is placed temporarily in the sand, making a mold that receives the molten iron or brass as it is poured from a ladle. Die casting, on the other hand, is a process of forcing metal under pressure into steel molds or dies.

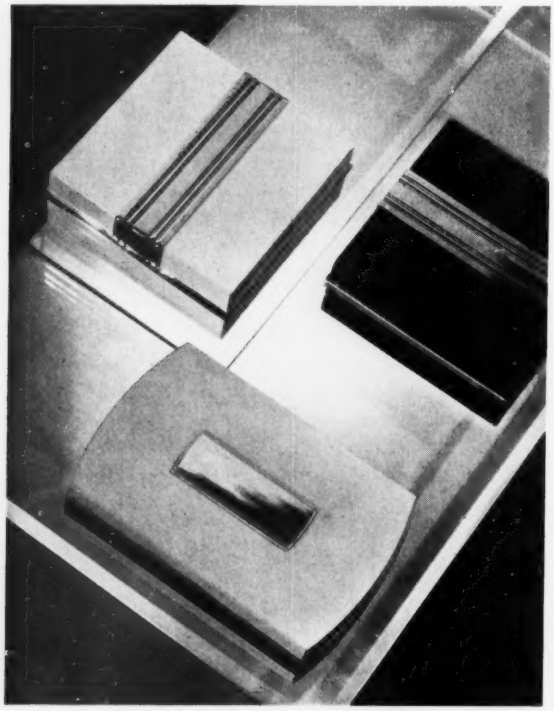
Here is an apt quotation that illustrates the economic set-up of die castings: "The economically

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Various commercial finishes can be applied to metal die cast packages

ideal way to make a finished part would almost certainly be a method which converted raw material into the finished part in a single automatic operation. No process for making complicated metal parts so closely approaches this ideal as die casting.



Re-use boxes of die-cast zinc

On the other hand, no method can attain any degree of success which does not yield a product satisfactorily meeting the requirements of the service for which it was intended. The remarkable growth in the use of zinc die castings is the outcome of metallurgical and mechanical advances which enable die casting to satisfy increasingly exacting requirements, and so enter wider fields of application."

Zinc die castings have already found wide and important applications in industry. The automotive industry has standardized on zinc die castings for over fifty separate parts, such as carburetors, fuel pumps, speedometer housings, cowl bars, brackets, windshield parts, cowl lamps and brackets, interior and exterior hardware, radiator trim, caps and ornaments, and many other parts. Makers of washing machines, household utilities, electric motors and fans, vending machines, refrigerators, cash registers, toys, novelties, etc., rely upon zinc-base die castings for reducing cost and increasing the quality. And now zinc die castings enter the packaging field.

Practically any type of commercial finish can be applied to zinc die castings. They may be electroplated with chromium, nickel, copper, brass, bronze, gold, or silver, as well as coated with paints, varnishes, lacquers, and enamels. The smooth surface on die castings requires little preparation for plating—usually only a light polishing. Automotive zinc base hardware is usually finished in bright chromium or nickel, but sometimes in dull nickel or chromium. The illustrations more fully point ont the possibilities of zinc die castings in the packaging field.

GLASS CONTAINERS

by J. K. Almroth

WITH current marketing methods throwing a larger sales responsibility upon the package in which products are packed for retail distribution, the glass container is now an important feature in the merchandising plans of an enormously expanded list of products. In the field of drugs, pharmaceuticals, beverages, milks and certain foods such as catsups, vinegars, table sauces, salad dressings, pickles, peanut butter, honey, etc., the glass container has long had a prominent place. With the entrance of automatic machinery into the glass industry, it was possible to reduce the cost of glass containers so that they became comparable in price with other types of packages, and their inherent advantages, particularly in display of contents, won them wide preference among product manufacturers.



From left to right: Gallon Packer, Water, Miscellaneous Food, Preserve, Milk

Distinctive appearance, conformity to the product, eye-appeal, the suggestion of cleanliness, convenient closures, visibility of contents and re-use possibilities, all have their values in the eyes of the modern sales and advertising manager. The usual colors of glass containers are flint (clear white), amber, blue, light green, emerald green, black and opalescent. To these have been added certain imported colors, notably a special shade of green. Special types of thereof can be applied over the entire surface. This feature, combined with the natural pliability of molten glass which enables it to be adapted to almost any desired form, style or finish in various colors, and the immense range of attractive label possibilities which glass containers offer, make this type of container particularly suitable for the requirements of present-day competitive selling.



From left to right: Mustard, Mayonnaise, Cream, Medicine, Prescription, Polish, Atomizer, Perfume

Now that satisfactory machinery has been developed for vacuum-packing in glass under exceptionally high vacuum, the field for their use is rapidly extending to such products as coffee, teas, spices and numerous other foods.

At moderate cost new processes have also made glass containers available with the name of the product, the trade mark or other design, fused into the surface of the glass in colors. In a similar fashion an almost unlimited range of colors and shades bottles and other containers have been developed for each division of the packing and beverage industries. Strictly modern designs have been produced in amazing variety with a highly developed technique in which simplification and effectiveness are conspicuous. Old designs are being modernized so as to gain the advantage of the improved technique without losing the spirit and prestige of the old style containers.

The glass containers most familiar to the various

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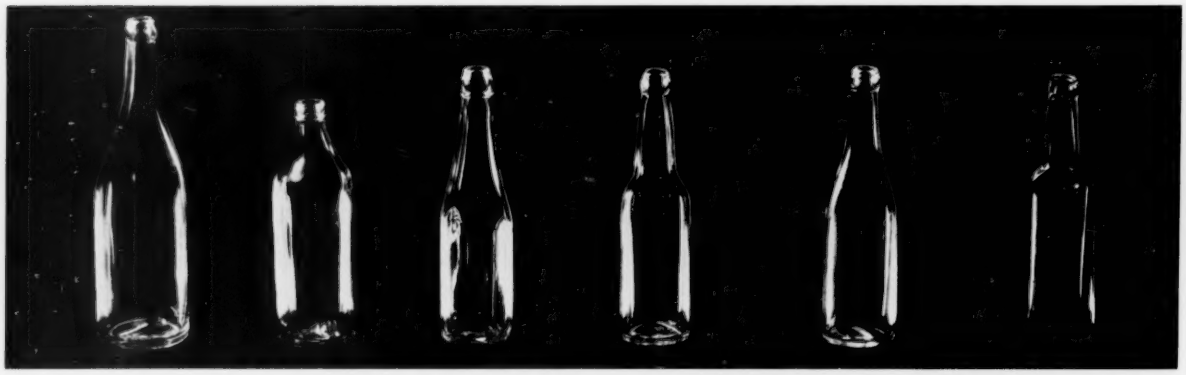


From left to right: Soda, Sauce, Cherry, Extract, Miscellaneous Proprietary, Horseradish, Toilet

industries concerned are classified into four broad divisions, and then further classified into many subdivisions. These classifications are as follows:

TYPES AND PURPOSES

1. Food:
   (*a*) Milk bottles: For milk and cream.
   (*b*) Narrow neck blown bottles: For catsups, chili sauces, table sauces, vinegars, salad dressings, syrups, condiments, spices, salad oils, oyster cocktails, etc.
   (*c*) Wide mouth blown bottles: For jams, preserves, mustards, candy jars, cherry bottles, olive bottles, pickle bottles, crushed fruit jars, horseradish bottles, mayonnaise jars, vegetable jars, meat jars, salt and pepper shakers (when sold to packers), etc.
   (*d*) Pressed ware, tumblers: Used largely for jelly, peanut butter, marmalade, cottage cheese and some meat products.
   (*e*) Jars for vacuum packing of coffee, teas, spices, etc.
2. Beverage Containers:
   (*a*) For carbonated beverages, such as sodas, ginger ales, malt extracts, cereal and malt beverages.
   (*b*) For non-carbonated beverages, such as fruit juices and still water.
3. Medicinal and Toilet Preparations Containers. (Both pressed and blown.)



From left to right: Grape Juice, Vinegar, Catsup, Beer, Porter, Ale

For all medicine bottles, druggists' prescription ware, bottles for pharmaceutical preparations and manufacturing chemists, toilet preparations, cosmetics, nursing bottles, sterilizers, peroxides, citrates, hair tonics, pomades, atomizers, liniments, cold creams, vaselines, face creams, lotions, talcum powders, castor oils, flavoring extracts, liquor ware, perfume and toilet-water bottles, etc.



From left to right: Coffee, Chili Sauce, Mason, Honey, Miscellaneous Food

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4. General Purpose Containers:

For acids, cleaning fluids, polishes, paints, shellacs, varnishes and stains, ammonias, inks, mucilages, battery jars, soap globes, oil dispensing bottles, reservoirs for oil stoves, floats, fire extinguishers and other special items.

ADVANTAGES OF GLASS

The glass container possesses many marketing advantages from the standpoint of the packer and bottler. A few of these advantages are listed below. Their sequence of importance depends upon the product.

1. The glass container is the most sanitary container. Dirt or any foreign substance in the product can be readily detected through such container.

2. The glass container places delicate foods and drinks in the consumer's hands free from all foreign tastes and flavors.

3. The development of automatic machinery makes it easy to pack a product in glass.

4. Transparent containers guarantee 100 per cent inspection, thus establishing public confidence.

5. In revealing everything as it is, the glass container gives the packer full credit for his use of high-class raw materials and superior packing methods.

6. The glass container helps sell its contents; it is the "silent salesman."

7. The packer is protected in that if there are any imperfections in the product or mistakes in labeling they can be detected while in his hands.

8. Since color is a potent factor, the transparent glass container packed with a colorful product offers unusual opportunities for the use of attractive, harmonious and sales-pulling labels.

9. The glass container has the best psychological background. From the nursing bottle through childhood to old age, glass stands for purity and sanitation in everybody's mind.

10. The housewife is already sold to the idea of glass for home preserving. Thus, she is a ready prospect for goods marketed in glass.

11. The demand for greater variety of products in glass is rapidly increasing.

12. The glass container lends itself to individuality in size and shape; hence, it is adaptable to many products.

13. Modern glass containers possess great tensile strength, withstand the heavy shocks incident to shipping and handling, and can be subjected to very high temperatures in processing (cooking).

14. Various products can now be vacuum packed in glass.

15. Many glass containers are valued in the home for re-use as pantry jars and for home preserving.

16. The applied color process can be used to fuse the name of the product, the trade mark and other designs into the glass, eliminating labeling if desired.

17. The manufacturers of glass containers and closures are glad to cooperate with the packer. They are squarely behind their product and their customers.

The Glass Container Association of America, 19 West Forty-Fourth St., New York City, is at the service of packers and bottlers requesting information upon glass containers, closures, machinery and equipment and specific bottling problems.

CLOSURES

by A. J. Sterling

FROM the earliest days of mankind the problem of sealing all classes of containers has been a vexatious question. The primitive urns, crocks and other vessels were sealed with covers of pottery, wood, skin and other crude methods, often topped with waxes of various kinds.

The first great advancement came with the discovery of cork, and this rapidly became universal in use. It served its prime purpose well and kept the contents of the container from leaking. Of course, glass became the first container with which the manufacturer had to contend and later on tin cans brought him further problems.

Glass, with its sanitary qualities, transparency and pleasing effects, took its natural leadership in a great many lines, but probably even today only about 30 per cent of those products which could be glass-packed are shipped in glass. This is due to the fact that up to the present time the glass container, plus the seal, plus the label, has not been considered as integral a whole as the tin can.

An ordinary cork, when pushed all the way into the neck of a glass container, needs a corkscrew to get it out, and this often destroys its effectiveness as a re-seal. Although corks form a very tight seal, they are hardly ever absolutely airtight. Space forbids going into details about corks or all the other sales that have since been discovered, most of which are now in use. Suffice it to say that it behooves us all to carefully study, test and compare the seals and methods before adopting any, remembering that the molding material, cork, metal, lacquer, liners, glassware and product to be sealed must be considered.

The following illustrations show those closures which are the most prominent:

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SINGLE SEAL CLOSURES



ALUMINUM VACUUM CAP WITH EAR FOR TEAR-OFF PURPOSES. A SIMILAR TYPE PROVIDES TWO EARS. MADE ALSO OF TIN



VACUUM CAP USED IN THE FOOD INDUSTRY FOR WIDE-MOUTHED WARE



BAND CAP USED IN THE FOOD INDUSTRY AND APPLIED BY CRIMPING



CROWN CAPS, WIDE AND NARROW. USED IN SODA WATER, FOOD AND BREWING INDUSTRIES



GOLDY SEAL, WIDE AND NARROW, WITH TEAR-OFF FEATURE. ALUMINUM



TWO-PIECE CAP FOR FOODS (WIDE MOUTH)



WHITE VACUUM CAP FOR WIDE AND NARROW MOUTH WARE

RE-SEAL CLOSURES



ANCHOR A CLIPPER FRICTION CAP



ANCHOR R CLIPPER FRICTION CAP



AMERSEAL, ONE-PIECE AND TWO-PIECE, NARROW AND WIDE. QUARTER-TURN CAP SEALED BY MEANS OF INTERRUPTED THREAD



CROWN LUGGED CAP



BRASS CAPS WITH LUGS OR THREAD, FRICTION OR QUARTER TURN



CORKS, RUBBER AND NATURAL. ALSO MADE IN COMBINATIONS OF GLASS AND CORK, GROUND GLASS, PAPER DISCS, ETC.



C. T. CAPS OF PHENOL RESIN, TIN AND ALUMINUM. ALSO IN GLASS, BRASS OR ZINC. THESE ARE REGULAR SCREW CAPS



DARLING CLOSURE. ADAPTATION OF CROWN CAP WITH RE-SEAL FEATURE BY MEANS OF WIRE LEVER



DUPLEX CAP. A QUARTER-TURN CAP, SEALED UNDER DOWNWARD PRESSURE



FRICTION CAP ESPECIALLY DESIGNED FOR CATSUP AND CHILI SAUCE BOTTLES



ROLL ON. AN ALUMINUM SCREW CAP, THE THREADS OF WHICH ARE FORMED ON THE CONTAINER



STERLING CAP. FOR NARROW OR WIDE MOUTH WARE. SEALED UNDER PRESSURE OF VACUUM

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U PRESS-IT, SEALED BY MEANS OF INSIDE PRESSURE AND OPENED BY DOWNWARD PRESSURE



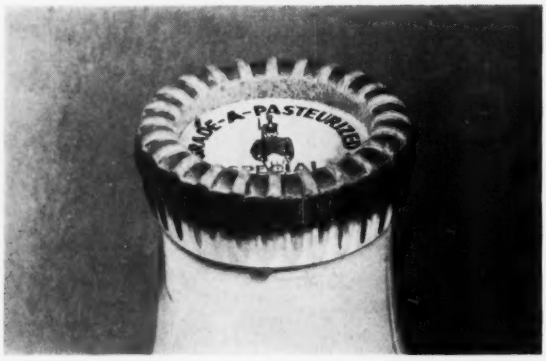
FRICTION TOP, WITH OR WITHOUT INNER SEAL



CORK-N-SEAL, WIDE AND NARROW MOUTH, SEALED BY DOWNWARD PRESSURE



LOCK-TITE SLIP COVER WHICH INSURES ABSOLUTELY TIGHT SEAL



SEAL-KAP SANITARY RE-SEAL COVER FOR BOTTLES AND JARS

SINGLE AND RE-SEAL CLOSURES

(Used on tin containers only)



NEWMAN CLOSURE. THESE ARE GENERALLY USED ON VARNISHES, OLIVE OIL, ETC., AND ARE SPUN ON



BARROL SPOUT AND CAP; A SCREW CLOSURE WITH NON-DRIP SPOUT EFFECT



ONE-DRAW SLIP COVER



ONE-PIECE SINGLE SEAL, REAMED ON OR CLAMPED ON

MISCELLANEOUS



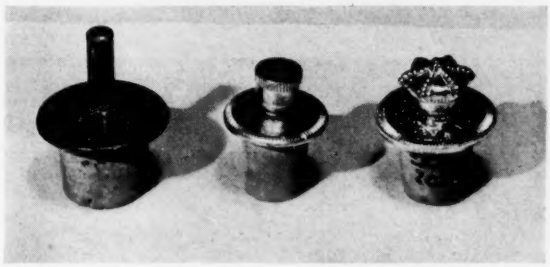
METAL DOUBLE SHELL SCREW CAPS. OUTER SHELL WITH STRAIGHT SIDE, INNER SHELL OF REGULAR SCREW CAPS



MOLDED C. T. CAPS MADE OF VARIOUS PLASTIC MATERIALS



GEL CAP, APPLIED AS SECONDARY CLOSURE



SPRINKLER TOPS, MADE WITH OR WITHOUT SPUN ON FEATURES AND ALLOWING USE BY MEANS OF SHAKING



HOODS OF FOIL AND METAL, USED AS SECONDARY SEALS



VISCOSE AND CEL-O-SEAL CAPS OF GELATIN AND CELLULOSE, USUALLY PLACED OVER OTHER CLOSURES FOR EXTRA AIRTIGHT PROTECTION

SPECIAL CLOSURES



INTERRUPTED THREAD CAP WITH CUT-IN LUG



ALUMINUM REAMED-ON CAPS, PLAIN AND SIFTER TYPE

GLASS FINISHES FOR CLOSURES

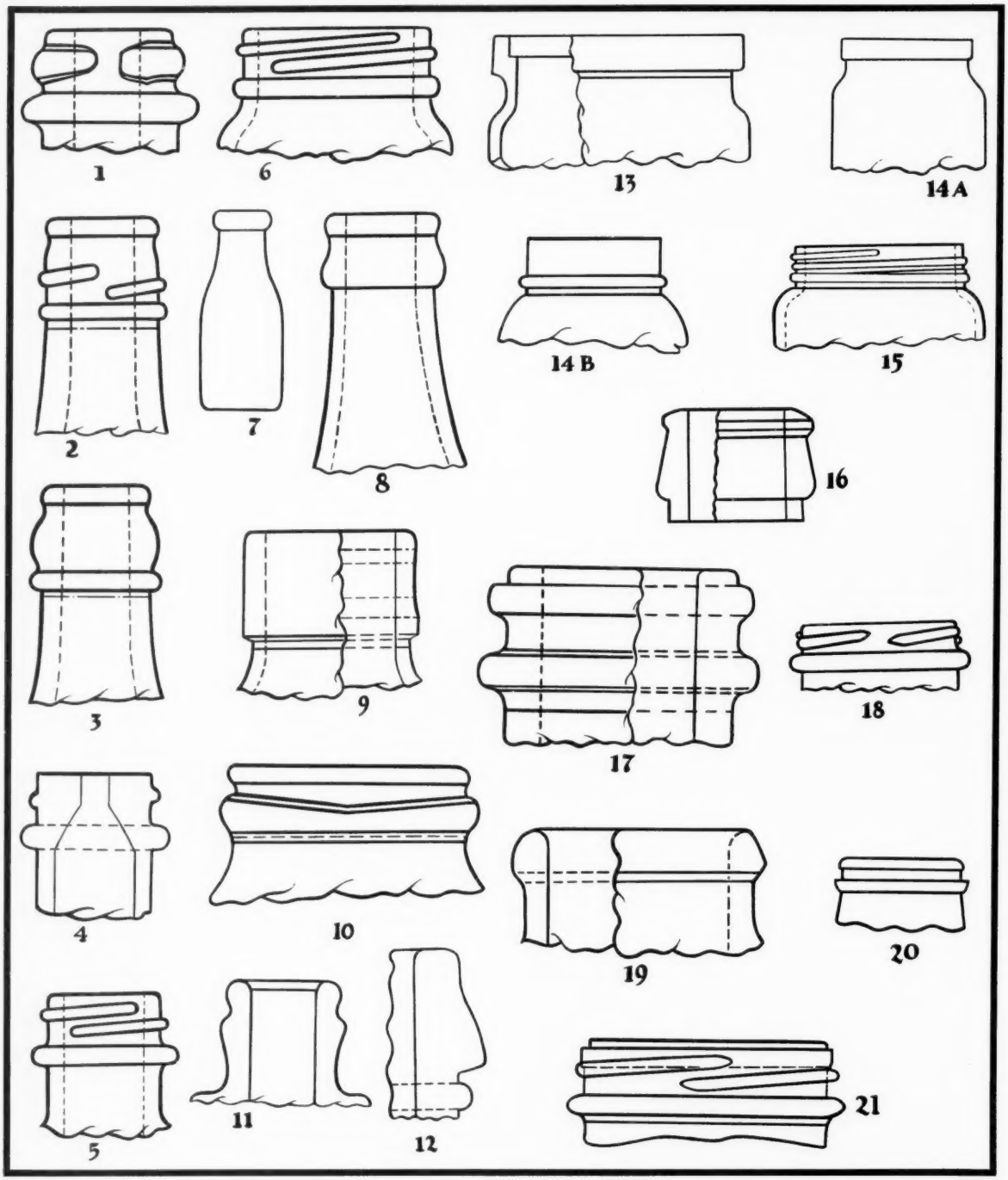


Fig. 1. Two lug Amerseal; Fig. 2. Combination Goldy, Crown, Handicap and screw cap; Fig. 3. Combination Goldy, Crown, Handicap and friction cap; Fig. 4. All glass sprinkler top; Fig. 5. Shallow continuous thread; Fig. 6. Deep continuous screw thread; Fig. 7. Milk bottle; Fig. 8. Crown beverage; Fig. 9. Save-a-seal (Patented); Fig. 10. Variable ledge "Priof;" Fig. 11. Kork-N-Seal; Fig. 12. Four lobe duplex seal; Fig. 13. Phoenix band cap; Figs. 14-A and 14-B. Anchor or friction; Fig. 15. "R. O.;" Fig. 16. Goldy; Fig. 17. Super-crown; Fig. 18. Four lug reseal; Fig. 19. U press-it; Fig. 20. Straight ledge pry-off; Fig. 21. Everseal.

Diagrams furnished through the courtesy of the Glass Container Association of America.

LINERS FOR CAPS

TO a considerable extent, closure efficiency depends upon the liner. It is the liner that comes in contact with the product and makes the actual seal with the glass. A liner usually is composed of two parts: the liner surface that touches the product, and the liner backing that provides resiliency and resistance. The selection of each should receive consideration as to the function to be performed.

The surface material must be carefully specified to withstand any possible chemical action or deterioration from the properties inherent in the product. It must be selected according to product characteristics in order to function properly.

The function of the liner backing is practically the same with all products. It, too, must be carefully specified with due regard to a number of factors. Among these are flexibility, softness, uniformity, economy, and the ease of working.

From the standpoint of assisting the spring seal action of the cap itself, in making an airtight, leakproof seal the liner backing must have the correct amount of firmness or compressibility, as well as the greatest possible resiliency. The material should not be too easily compressed or too soft, because a certain degree of firmness is essential in order that the seal does not loosen nor the edge of the glass compact it too far. On the other hand, it should not be too hard, but pliable enough to fill in the shallow waves or irregularities that may be present in the sealing surface of the glass.

The highest degree of resiliency is desirable so that there will be a constant tendency of the backing material to resume its former thickness (before being compressed), thus insuring that, after the cap is applied, the seal will remain tight and secure during its period of service.

When the use of liners was confined to crown caps, for which they were originally devised, the problem was not a trying one. It was answered satisfactorily by disks of natural cork or of cork compositions that would hold the comparatively simple and chemically inert carbonated or low alcoholic beverages which were sealed with crowns. However, with the development of screw caps and other types of mechanical closures, the liner problem became more complex and required close attention.

Many materials have been developed for the purpose, but still there remains the question of determining which particular one to use for a specific product. Logically enough, the cap manufacturer has shouldered the job of answering this question for those who contemplate using his caps. The packer can and should by all means submit sample packages of his product and a chemical analysis of it to the cap manufacturer for laboratory tests to find out the kind of liner it requires.

Cork compositions produced by granulating high-quality corkwood, introducing a binder, and compressing into blocks from which sheets or ribbons are cut, are widely used as lining materials. Disks of natural cork are also used to some extent but due to the limited supply of corkwood that is largely free from pores and other defects, its use is restricted. Compositions serve equally well except in that the introduction of a binder and the presence of interstices in the surface make them susceptible to chemical reaction in some cases. Various binders that are inert to certain chemicals are used to overcome this, and this factor marks the first differentiation between cork composition liners.

In addition, it has been found advantageous in some cases to treat the cork composition with paraffine or other waxy materials. Such treatment often makes a plain cork liner satisfactory, However, these treatments should always be used with caution for it must be remembered that there are many liquids with which they should not be used.

A great variety of liners is produced by applying a facing material over the cork composition. This operation is ordinarily referred to as "duplexing." The cork gives the liners the necessary thickness, strength and resilient compressibility, while the facing, which is presented to the contents of the package, resists chemical action. The facing materials used are varnished papers, paraffined papers, tin foil, aluminum foil and lead foil, in addition to foil backed with paper.

Varnished papers, which are probably the most widely used of all liner facing materials, have been appropriated and developed from the electrical insulation business. They have different chemical characteristics depending on the formula used in making the varnish. Two pieces may be identical in appearance and yet vary greatly in performance. Careful tests of varnished papers must be conducted before selecting a specific kind of quality for a product. Sometimes varnished papers are coated with paraffine in order to lubricate the surface and prevent tearing, due to roughness of the bottle, when the cap is screwed on. This safeguard cannot be used if the liners are to seal products which dissolve the paraffine. Paraffined plain white paper as a duplexing material sometimes proves satisfactory with creams and pastes. Ordinarily, however, this paper cannot be used with liquids.

Tin foil-faced cork composition has a large field of usefulness as a lining material due to the fact that it withstands contact with a wide range of chemicals. However, it also has definite limitations and is more expensive than varnished paper. To give tin foil added strength and a better appearance, a lining material has been developed in which very thin foil is backed with a reinforcement of paper. In

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some instances aluminum foil and lead foil are also being utilized.

Pulpboard is still another such material which may be had in the various facing combinations mentioned. Rubber is also used for liners. Its principal use is in sealing strong alkaline solutions which attack the more common lining materials. Special rubber liners for hypochlorite and other preparations have been developed and there are also available special compositions for organic solvents.

GLASS PACKAGE LABELS

by F. L. Robinson

LABELS for products packed in glass have changed so radically during the past year that the modern manufacturer will do well to look over his entire line and see that his labels are giving him the maximum selling power.

"Selling power" is just the right definition for the new labels—they have to sell and they have to make spot decisions.

In the past, it was commonly thought that anything that was packed in glass could sell itself. Glass-packed products were new to the public, and people liked the idea of being able to see what they bought. The novelty of the idea increased the sales of many manufacturers' products. However, as time went on and more and more products appeared in glass containers, there appeared a need for distinctive labels to help merchandise move from the dealer's shelves. So many new products appeared in glass that not all could find a place on counters and in windows. Furthermore, with the many new developments in glass containers, there arose a definite need for a specialized type of label. Each trade has its own peculiar characteristics for its labels, but in general they all contain the same essentials.

There are three kinds of labels that are being used extensively. The lithographed label, the flat printed type, and the flat or embossed metal foil labels are found on thousands of products today. During the past year, the effective label has been that one which could influence a prospect to buy in spite of the fact that several items may have been competing for the sale.

The effective label has the following characteristics which distinguish it from those of past years:

1. It is distinguished by its simplicity. No matter what type of printing is used, the essential characteristics must stand out and be read at a glance. It may be the name of the product, it may be a slogan, or it may be a trade mark. Whichever is most important to the sale of the product, that will be outstanding on the label.

2. There are fewer colors. Today, two or three colors, well planned and in a good design, are far more effective than the old label that had five or six, all mixed up in a design—no one of which was outstanding.

The modern embossed label or seal today is printed in one color on gold or silver foils. By far the majority of metal foil labels are printed one color, preferably black, red, or blue. Another paper that is increasing in attention value is glazed surfaced and white or cream colored.

3. Superfluous printing on modern labels is out. Only the most important information is printed on the label occupying the front of a glass container. This might include the name of the product, the trade mark, the manufacturer's name and perhaps a simple slogan. The tendency is for less printing and more showing of the stock. Many of the modern stock surfaces are so unusual that they have excellent display value themselves. Should it be necessary that more information accompany the product, a second label is used on the reverse. When one large label is used the spaces on the sides are left vacant so they will not conflict with the selling message on the face.

The reason for this simplification is apparent. Few words are easier to read than many. Labels have to be billboards. Products compete for attention.

4. A noteworthy step in label planning has been the increased emphasis on trade names. The manufacturers' names and other important factors that in the past have been prominent have been subordinated. People today are brand conscious; they ask for things as they see and hear them advertised. A prominent trade name is usually much shorter, more easily displayed and makes a deeper impression on the consumer.

Today, labels are designed for specific container designs. There is more grace, more beauty, more scientific reason for the label on the glass container than ever before. People buy because of container utility and beauty in many lines. The label that can emphasize these qualities has to be made for that particular container.

Thousands of firms will change the appearance of their containers during the coming year. It has been proved in many cases that new containers have increased sales. Manufacturers are realizing that they have ignored this fact in the past. They have spent thousands for advertising and sales promotion and have relied upon these media to sell their products at the point of sale.

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Today, the public buy differently. When they are at the point of purchase, they may have in mind purchasing the article they have seen advertised. But the product that is well dressed, that which the public can see and handle and which has a quality air, stands a very good chance of being purchased. Distinctive glass containers and labels are responsible for many sales today.

Fortunately, many of the largest firms have recognized this fact and are making their products sell themselves at the point of sale. Their labels and containers are so distinctive that other brands not so well dressed lose their drawing power.

For 1934, the wide-awake manufacturer will review his glass containers and labels at the same time. The two go hand in hand together, and both play an equally important part in merchandising programs. A fraction of a cent in a container's appearance may mean thousands of dollars in increased sales of the product.

LABELS FOR ROUND CANS

MOST of the trouble which is met in labeling can be attributed to the use of labels which are off size, improperly trimmed or printed, cross-grain or incompletely dried. The following suggestions will be found helpful and will save time in the mechanical application of the labels, making frequent readjustment of labeling machines unnecessary.

To determine the correct length of a label, add $^3/_4$ in. to the distance around the body of the can. It is generally known that wet paste on tin is likely to cause rust so that it is desirable to keep all paste between the two thicknesses of paper. For this and other reasons, experience has shown the inadvisability of using short labels, and in the interest of standardization the general adoption of the above rule is highly desirable for any size round, hermetically sealed, friction lid, screw top or slip cover cans.

To determine the proper width, deduct $^1/_{16}$ in. from the distance between the can flanges. It is impracticable to calculate on labels fitting snugly between the flanges, particularly on double seamed cans, because the distance between the flanges varies according to the adjustment of the individual closing machines. A full width label on a slightly narrow body will run up on the flange and fail to make a neat appearance. The slight clearance provided by adopting the above rule assures more uniformity in matching the laps of labels under varying conditions. On slip cover cans, the correct width is determined by deducting $^7/_{32}$ in. between the inside of bottom flange and the top edge of the lid.

The following are dimensions for standard size labels for double seamed cans of the sizes shown:

Can Size	Type	Size of Label
$2^{11}/_{16}$ in. × 4 in.	No. 1	$3^{11}/_{16}$ in. × $8^{15}/_{16}$ in.
3 in. × $4^{11}/_{16}$ in.	No. 1 tall	$4^3/_8$ in. × $9^{13}/_{16}$ in.
$3^3/_8$ in. × $4^9/_{16}$ in.	No. 2	$4^1/_4$ in. × $11^1/_8$ in.
4 in. × $4^{11}/_{16}$ in.	No. $2^1/_2$	$4^3/_8$ in. × $13^1/_8$ in.
$4^1/_4$ in. × $4^7/_8$ in.	No. 3	$4^9/_{16}$ in. × $13^{13}/_{16}$ in.

Particular care should be used in trimming labels to avoid tapering, i.e., the packs being wider at the bottom than at the top. Each pack should also be trimmed uniform in width, i.e., not wider at one end than at the other as it is impossible under such conditions to match the laps at both top and bottom.

It is well to have the laps meet in some sort of a circle style effect rather than in a straight line, because of the difficulty of trimming absolutely parallel to the border. A slight irregularity of matching at the border is not recognized with a circle effect design.

On embossed labels, arrange the design so that the embossing is distributed somewhat uniformly over the label instead of being concentrated in one spot. Don't run it closer than one inch to the plain or lap end, although it may extend to the other end if on both top and bottom border as well as in the center. When embossing is placed in the center only, the thickness of the pack is increased at that point, thus giving the pack an unevenness which renders efficient control impossible without frequent adjustments. The embossing should not be "overdone" as this causes the labels to cling together, making it difficult to separate them. If embossing dies are cut with round corners, labels will separate more readily.

White laps are more effectively sealed than either inked or varnished ones because any paste adheres less thoroughly to the latter. For this reason, label designs should extend only about $^1/_{16}$ in. longer than the distance around the can body. The length of the varnished surface should also be determined in the same way. It is especially desirable on friction lid and slip-cover cans to put the lap on the left end.

For high class or embossed work, a coated litho 25 × 38, 60 lb. to 500 sheets, makes the best label. A satisfactory label is also made from super-calender 25 × 38, 55 lb. to 500 sheets. Where a heavy varnished label is required, the stock must necessarily be lighter and a super-calender of the same dimensions weighing 52 lb. to 500 sheets is used.

The grain of the paper should run lengthwise on all labels. If the grain runs crosswise or with the width of the label it becomes tender after the lap is moistened and is more likely to tear while being stretched. Furthermore, the lap tends to curl back before the paste dries.

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PRINTING IN SHEETS AND ROLLS

by B. W. Martin

AT an early stage in the development of transparent sheeting, it became evident that its field of usefulness would be greatly enlarged if it could be printed. Without printing, many manufacturers, especially in the food industries, experienced difficulty in finding adequate means of identifying their products when transparent wrappers were used. However, the non-porous surface of the material, as well as its temperamental nature, presented many problems to the converter, and much patient research was necessary in the endeavor to find their solution.

Intensive effort was applied, and progress in this direction was achieved as the result of several interesting inventions. Transparent wrappers in sheet form, printed in from one to five colors including gold and silver, have been available for some time past, and have found extensive application in many fields. In the candy industry they are being used for wrapping bars and boxes, as well as assemblies of individual pieces in cardboard boats. Meat packers have employed printed transparent sheets on a long list of products, including sliced bacon, pork sausage, smoked pork butts, regular and picnic hams, meat loaves, sliced dried beef, dry sausage, bacon squares, scrapple, chili con carne and various sausage specialties. Shirt and underwear manufacturers have found that attractive printed designs added identity and beauty to visibility and product protection, while the same attributes have brought many brands of noodles and macaroni to market in convenient, transparent packages. Butter, hosiery, small items in the textile line, rubber goods, pies, cakes and cookies are other hand-wrapped products on which printing has made the use of transparent sheeting practical and efficient.

A particularly interesting development in the art of printing on transparent sheeting has been the comparatively recent perfection of gravure printing, providing a means of securing great opacity in the printed area. This branch of the art has been especially valuable to manufacturers of sticky or moist foods, where the action of the juices in the product impaired the appearance of printing applied by the letterpress method. Because the gravure process made possible effects that could not be obtained by ordinary printing methods, a number of new applications of transparent sheeting came about through its introduction. Dried fruits, particularly, benefited; these are being packaged in printed transparent sheeting in a constantly growing volume.

Another valuable contribution to visible packaging came with the development of a method of applying a tinting to the transparent sheeting. Tinting is now available in a wide range of colors. This tinting can be applied either to the entire area of the sheet, or to a limited, definitely located area, as desired. Manufacturers of chocolate, or chocolate-coated candies, as well as those whose product requires the use of a colored wrapper, have found this development a genuine boon.

Further impetus was given the use of transparent sheeting by the subsequent perfection of methods whereby the printed stock is not sheeted, but is delivered in rolls to the user, and run through specially adapted packaging machines. Products packaged on automatic machinery, requiring the use of continuous roll wrappers, may now employ transparent sheeting printed in from one to six colors. Variety, or special breads, cigars, patent medicines in cartons, toilet soap and certain types of candy bars are examples of such products. Perfect design registration on the package has been secured through the use of photo-electric cells.

Opaque printing, as done by the gravure process, on continuous web rolls, is finding favor in the cigar industry. Reproductions of cigar bands as well as "continuous" or "all-over" designs are being used to a considerable extent. Certain forms of chewing gum, packaged in transparent sheeting on automatic machinery, are also employing printed roll stock.

The advantages of transparent sheeting printed by perfected multi-color methods created a further demand for its application to a variety of package forms, to accommodate products where sheets, rolls, or the usual types of bags would not answer. As a result, a number of interesting package ideas are now available in which printed sheets or rolls of transparent material are combined with cardboard backs. Some of these come in the form of bags, easily filled, closed and opened, yet possessing the rigidity necessary for the packaging of loose or fragile products or textile items which do not lend themselves to packaging in transparent sheet only. Lingerie, candy bars, nut meats, candy which comes in small pieces, noodles and macaroni, glacé fruits, powder puffs and hosiery are products successfully employing this type of package.

The use of transparent sheeting in the form of bands or wrappers, printed with appropriate designs, has permitted the transformation of standard packages of many products into special holiday numbers. Such transformations are accomplished at a minimum of expense, and with the further advantage that the merchandise can be reconverted into standard packages after the holiday season by simply removing the special bands or wrappers.

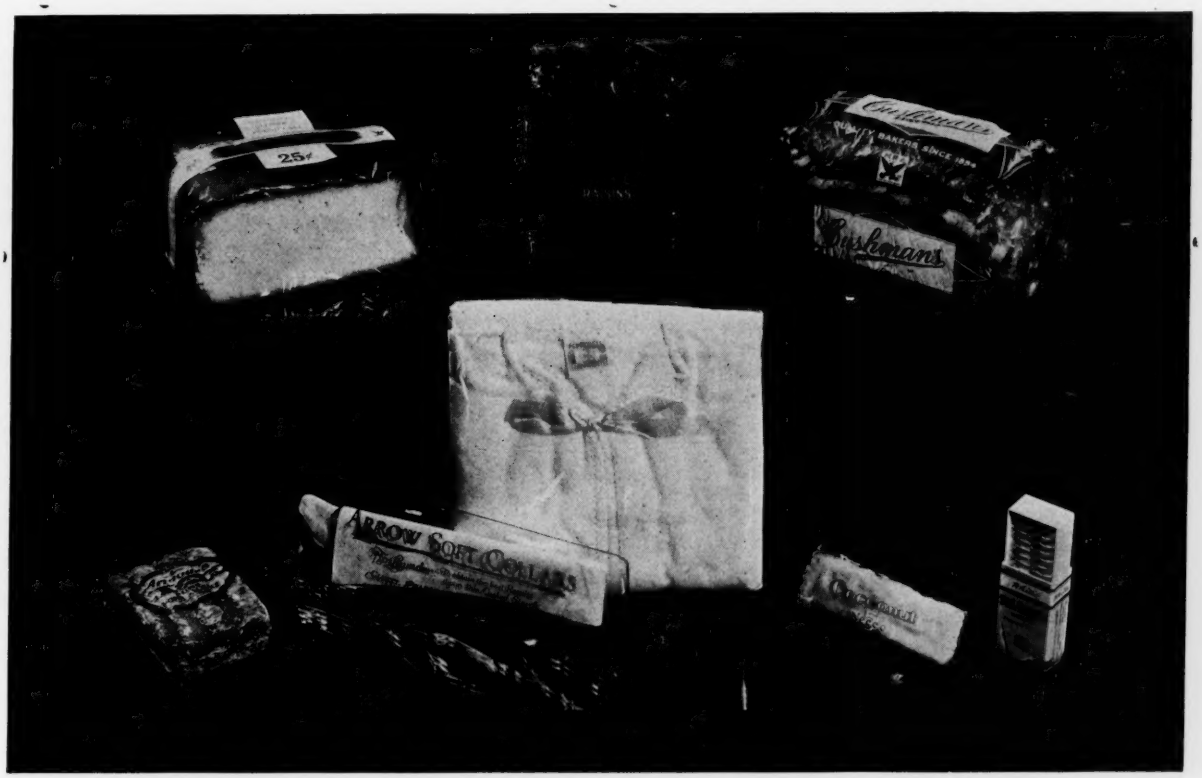
Colorful and striking designs are available for such holidays as Christmas, Easter, Mother's Day, Valentine Day, Father's Day, Fourth of July, Hallowe'en and Thanksgiving. Notable achievements have also been made in the production of Christmas and other holiday wrappings for gifts, printed in many colors on colored transparent sheeting. Matching designs are available in the form of narrow ribbons of the same material.

Of especial interest to manufacturers contemplating the redesigning of package lines is the great improvement in design technique as used in connection with the decoration of transparent sheeting. Designs initially created were simple, usually employed few colors and avoided halftone and Benday effects. Present production facilities permit the artist a wide choice of effects, and an almost unlimited range of color schemes. Outstanding examples of the possibilities in this direction are the redesigning of several complete lines of packaged candies, to carry a "family" motif through the entire line. With a choice of letterpress or gravure printing in as many as six colors, with tinted or clear stock, and sheets, rolls, bags or specialized package forms to select from, artists and package designers are finding in printed, transparent sheeting a modern, highly adaptable packaging material that provides new scope for their genius. In addition to the elements of novelty and beauty, printing provides the means of perfect product identification, supplementing and often enhancing the inherent qualities of the transparent sheeting itself and without minimizing its transparency and protective qualities.

APPLICATION OF TRANSPARENT CELLULOSE

THERE are three general divisions into which wrapping with Cellophane or similar transparent materials may be classified. These are divided as follows: Direct, direct with accessories and indirect, the applications of which may be seen in the accompanying illustrations. In each case the wrapping material may be plain or moistureproof, printed or unprinted or colored Cellophane may be used, depending on the desires of the package user.

In some cases there is a tendency to assume that a particular product can use only one of the general types of wraps. This is not always the case, as, for example, in the baking industry cakes are wrapped directly in Cellophane, also with the use of accessories and then overwrapped.



Packages which show direct use of wrapper on product or as an envelope or bag. Provides complete visibility and protection. Can be applied manually or by machine, printed or unprinted

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Packages which show direct use of wrapper with accessories. Paperboard stiffener, boats, cut-out cartons or cards provide rigidity and shape to package, at the same time protecting product



Packages which show indirect use of wrapper, where protection of the package itself is desirable or of advantage. Wrapper permits full visibility of design and provides a de luxe package

PACKAGE ADVERTISING

by Robert R. Brown

PACKAGE ADVERTISING may be defined as that form of consumer selling or promotion which utilizes the retail package as the medium or vehicle for carrying the message. It may have for its purpose any one or all three of the following objectives: (1) Keeping customers sold on the product. This objective is most commonly attained by utilizing the package literature to give complete and detailed instruction for the use of the product. In addition, this objective is attained by using the package literature to constantly remind the customer of the unique sales points of the product or its individual institutional story. (2) The second use for package advertising is to build volume through variety of usage. More often than not, a product has other uses than the one for which it is commonly bought and it is in this particular that package advertising is especially adaptable for inducing a customer to try other uses. A new use is a new customer in any merchandising language. (3) The third main objective for the use of package advertising, is for *cross-advertising* purposes. This consists of calling the attention of a customer of one product to other products in the line by means of package advertising.



TYPES OF PACKAGE INSERTS

Rear row: Banded insert with transparent cellulose band; over-end insert, machine applied; collar label, hand applied; inner-carton insert, machine or hand wrapped; Outsert applied to bottle
Front row: Neck band insert, applied to bottle; under-label insert, and envelope insert

Under any one of the three headings mentioned above, package advertising may utilize recipes, sampling coupons, premium offers, testimonials, illustrated instructions, lists of uses, booklet offers.

prize contests, proof-of-purchase coupons, institutional stories, personality appeal, etc.

In general a package insert may be defined as a piece of advertising literature which is made to accompany a product by means of some form of insertion. The various classifications of inserts are as follows:

1. *Co-Product Inserts.* In this form of insert, the printed literature is inserted in with the actual product. It usually is placed on top of the merchandise as a last operation before closing the package. It can be inserted by hand or automatically by special insertion machinery. Due to acid reaction of inks, certain non-poisonous vegetable compounds should be used if the product requires. Government regulations are strict and specific in this regard. Usually single leaf inserts are used, due to the fact that with finer products such as flour, etc., a folded insert will bring out considerable of the product when the insert is removed. Specially oil treated papers are used with oily products such as canned sardines, shoe polish, etc.

2. *Inner-Carton Inserts.* These are inserts which are inserted inside of the protective carton along the side of the bottle or jar. They can be inserted by hand or special inserting machinery. They are removed after the bottle or jar has been taken out. Due to the fact that they usually cannot be seen unless the carton is examined after the bottle or jar has been removed, such inserts are often made inexpensively to allow for a high percentage of waste. A notable example of this is the Listerine insert.

3. *Over-End Inserts.* This form is inserted over the end of the cartoned jar, tube or bottle to make more certain of it not being overlooked when the carton is opened. This requires a longer form of insert, a narrow multiple fold and breaking the insert over the end of the container. They can be inserted either by hand or special inserting machinery at a high rate of speed. Removal from the carton and its being seen is insured by this method with the exception of the cases where the container opens at both ends and is removed through the bottom of the carton rather than the top. Practically all inserts in toothpaste cartons follow this method.

4. *Banded Inserts.* A banded insert is one which is confined to an un-cartoned container by means of bands consisting of various materials. The most used band is the rubber band. This is strictly a hand application operation. The rubber band is likely to roll off in handling and is subject to deterioration which besides losing the insert marks the age of the product. Other banding materials are kraft paper and transparent cellulose. This operation is usually done by hand, although special automatic machinery can be built. The most notable example of a banded insert is to be found on the Three-In-One Oil can. The transparent cellulose band is often used for label protection as well.

5. *Under-Label Inserts.* This form is carried by means of inserting the folder under the label. It can be done by hand or by means of specially built automatic machinery. In some cases the label portion holding the insert is left unglued in order to allow removal of the folder. There is danger, however, of the folder slipping out in handling. To overcome this the folder or the label is spot glued which requires that the label be torn in order to remove the insert. The most notable examples of these two forms of under-label inserts are to be found on the Certo bottle and Carbona.

6. *Envelope Inserts.* In this case a separate envelope is labeled to the back of the container by hand or labeling machinery and the folded insert is placed in the envelope by hand. The oldest example of this form of package advertising is that of the Feen-a-mint bottle. The main drawbacks of this form are the bulkiness of the combined envelope and insert and the inaccuracy of spot labeling at high production speed. Its commendable point is to be found in the envelope serving as a container for reinsertion after the insert is read.

For purposes of package advertising the surface of the container is often utilized to do the entire package advertising job. Particularly is this true of tin containers such as types used for fruits and vegetables and the types used for insecticides. These containers give a large printing area. For the other types of containers the package advertising job is usually limited to one of the four surfaces.

1. *Front Label.* Although the front area as a means of package advertising formerly was used extensively, the modern trend of simplified design has removed practically everything from the front label except the design elements. One of the most notable present examples of this former practice, is to be found in the label on some of the Squibb products. One way which has been resorted to as a means of meeting both the demand for simplicity in label design and the necessity for package advertising, has been to extend the front label around the two sides of the container. The front area is made to carry the design while the package advertising is placed on the two wings. The all-around label is merely an extention of the idea and is done for the same reasons.

2. *Back Label.* While the front label is usually devoted entirely to label design, the back label is utilized for package advertising purposes. It is usually limited to directions for the use of the product which necessarily must be brief. Occasionally other uses and other products are listed but seldom is there any space for selling.

3. *Cap Area.* The top or cap of a container is frequently used for package advertising purposes. Its most usable form is the lithograph metal cap. The most notable example of cap area advertising is to be found on the Best Foods Mayonnaise jar, where various recipes and cross-advertising are

placed. Another form used is that of a pasted top label.

4. *Bottom Area.* Particulary in cases of high class cosmetics where the appearance of the container is of extreme importance, the bottom surface of the jar or bottle is utilized for package advertising which usually takes the form of a pasted label but has the disadvantage of the likelihood of its not being seen, although some very good results have been obtained from utilizing this space. The most practical container for utilizing the bottom area is to be found in the sifter-top container, which necessitates the bottom being turned up to view when the product is used.

Under the third classification is to be found those forms of package advertising which consist of separate units added to the package for the specific purpose of doing some special package advertising job. The three most widely used forms are:

1. *Collar Label.* This is usually a single sheet with a die-cut hole. This form is hung over the neck of the bottle and is not subject to automatic application.

2. *Special Banded Label.* This form consists merely in a printed strip of paper or other material which is wrapped around the container and sealed by an overlap. This form is utilized most widely in the case of bread; also Outdoor Girl has used it extensively on their powder cans to do specific merchandising jobs.

3. *Extra Wrap.* This form consists of a secondary wrap around the container which serves primarily to carry package advertising. The best example is to be found in the extra wrap on the Crisco can where the inside surface of the wrap is devoted to recipes.

4. *Tag Form.* With this method a string is used through the eyelet of a card, folder or booklet to tie it to the merchandise. This is most commonly done with such utensils as kitchen ware which do not offer opportunity for other means of package advertising. It is a hand operation.

An Outsert is an interiorly sealed folder which is attached to the outside of a bottle, jar or carton by standard labeling methods and equipment. It remains confined in shipment and on the dealer's shelf; yet is readily opened by the consumer. No carton is necessary to carry the literature nor is a band needed to confine it to the container. They remain labeled to the container until such time as the customer has time and is disposed to read them. When opened and removed, a direction label remains permanently on the container. The Outsert views every package as having two sides: the sales side which includes the package design, label, cap and general appearance, and the re-sale which utilizes customers' circulation for package advertising purposes. The Outsert is a patented idea manufactured by Outserts, Inc., and combines all of the advantages of an inset with greater space

DISPLAYING THE PACKAGE

by R. W. Thomas

THERE is no branch of advertising to which more attention has been paid during recent years than the improvement of the appearance of packaged merchandise. This improvement was started through the efforts of some few manufacturers to out-distance their competitors by making their packages more appealing than the competing lines, and, naturally, the example was soon followed by others. In the beginning of this change toward a more attractive package, the new and more artistic examples stood out in strong relief from their competitors, which served as a foil for their brighter colorings and more striking designs.

The trend toward color and improved design has been so generally followed, however, that today, however bright and pleasing a package may be, it no longer has as great a power of attraction as at first, for its colors are now merged in the general color display toward which most of its competitors contribute equally.

The multiplication of the number of manufactured and packaged products, the increased individual demand attributable to national advertising and the open display resulting from the chain system of selling have been responsible for a studied economy in shelf space and an orderly and compact arrangement of packaged products which has necessarily lessened the individual appeal of each item.

As a regiment of soldiers advances toward you, the eye accepts the mass as one unit, individual features being disregarded in its acceptance of the whole, but the moment that half a dozen men step forward from the ranks the attention is immediately centered upon them and their individual features are seen and noticed. So the advertiser seeks to bring his products forward from the ranks to focus public attention upon it through prominence of position, and to suggest, by a forward advance from the shelves, a further possible advance into the homes of his prospective customers. He knows that, whatever may be said to the contrary, buying is by no

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Counter display basket which permits open display of goods within easy reach of shopper. Courtesy of Forbes Lithograph Manufacturing Company



Counter display with shelves, permitting the featuring of several related products. Courtesy of Einson-Freeman Company, Inc.



Display card and easel which permits the featuring of actual packages and sales message. Courtesy of Einson-Freeman Company, Inc.

means all planned beforehand, that the roving eye of the customer will fix itself upon the most prominently displayed items in the store, and that increased sales of his product will naturally result from interest awakened in this manner.

The patented counter display made for Morton's Salt not only displays the package, but it shows it in use, and suggests the free-running quality of the product in a most appealing way.

The Armour display leads the eye from the woman's face to her hand, and thus centers the prospective buyer's attention on the package itself, a package which, in illusion, has already been sold, and is now in the hands of its purchaser.

Cain's Mayonnaise attracts you with a gigantic representation of a mayonnaise bottle on the front of a lithographed stand which serves as a display tray for actual bottles of their product, which may be further displayed on the counter in a collapsible cardboard basket bearing their message.

Arm and Hammer Brand Baking Soda is similarly shown on a pedestal display of its own, while a smiling demonstrator in lithographed card offers you a package, and the text suggests immediate purchase.

Such are a few examples of these efforts to overcome the growing limitation of store space, to meet the changing economic conditions and to gain the



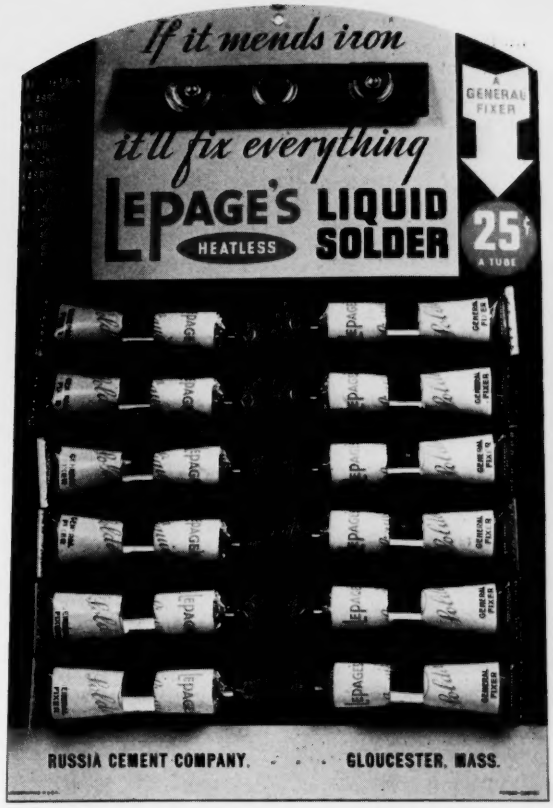
Counter or window pyramid displays which feature reproduction of packages. Courtesy of Einson-Freeman Company, Inc.

cooperation of the retailer in increased efforts to effect sales.

In window display of the package the scope is somewhat greater, as in a well-designed display the whole of the window space may be made available to one advertiser. The opportunity for artistic results is almost unlimited, but here, again, it is necessary to plan for an elastic display which may be adapted with ease to any size or shape of window.

The better the job is done, the more likely will the dealer be to use it; the more people it attracts to his windows, the better he will like it. There has been a great deal written and said about "dealer cooperation;" perhaps it is easy to forget what the word actually signifies. The dealer will be ready enough to cooperate where the advantage is mutual, when he can see that a display will actually make sales for his store of the product displayed and bring people into the store for other purchases also.

A successful window display may be based either upon the principle of harmony or the opposite principle of discord. A balanced and formal window attracts by virtue of its order and balanced design. This balance may be carried out in color harmony



Demonstrator display card which provides self-service and indicates uses for attached packages. Such displays as these sell packaged products "on sight." Courtesy of Forbes Lithograph Manufacturing Company

or in the pattern of its arrangement, or both. Or, on the other hand, attraction may be gained through a sudden departure from the orderly and ordinary, by a bizarre note of discord which strikes the eye, and which, when cleverly executed, will sometimes achieve results in attractiveness which would be impossible to more formal setting.

In both cases the first point of attraction must be the appeal to sense, or to the senses, in order that the advertiser's message may be instantly delivered, and interest for the product awakened.

METAL DISPLAYS FOR PACKAGES

by D. H. Bitney

THE designing and manufacturing of lithographed sheet metal or wire display racks has been studied and developed to a high degree of perfection, and has kept pace with the constant improvements in the packaging of products. In the past two years there have been some attractive and economical display racks developed for almost every type and kind of package from a fly swatter to a hot water bottle. The racks provide displays for products that it would be impossible to display in any other way, and it would be out of the question to get the merchant to display the product unless an easy and attractive method was provided. Invariably these displays immediately increase the sales of the product, and please the dealer who keeps the display fixtures in use for many

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months. They often pay for themselves the first month they are used.

The statement is often made: "We will have to have a high-class display rack, for our merchandise is high-class and goes to a high-class trade." A nickel-plated or gold-plated rack will not sell high-class merchandise or any other kind of merchandise. Remember that you are not selling racks—you are selling merchandise off of the rack, and if your package is attractive it would sell best if suspended in mid-air, without any rack or anything to detract from it. The more you can get your merchandise out in front of your display fixture, the less you can see of your fixture; the better your product is displayed, the more you will sell.



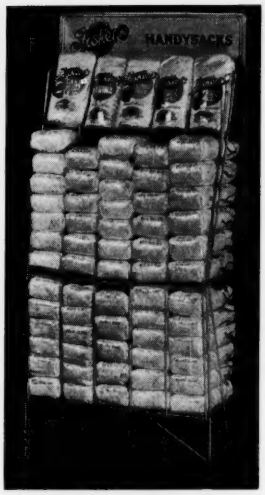
Wire rack display and basket dispenser for bottles

The more inexpensive display racks or fixtures are generally sold to the dealer with a deal of some sort. Some racks are included with a gross of a certain package, or with a contract covering a certain quantity during the year. Naturally more merchandise is sold to the dealer than he has purchased previously, for you have provided a means for him to sell more of the merchandise and bring more profit to him.

The heavier and more expensive racks are most always loaned to the merchant, and if he purchases a certain amount of merchandise during the year, the rack becomes his property. The method of handling the display rack with the merchant depends a great deal on the value of the merchandise displayed on the rack. The selling or loaning of the racks to a merchant always makes the merchant respect the rack more, and as long as he has any money tied up in them, or the rack belongs to someone else, he will see that it is kept in use and that he gets all the good out of it that he can.

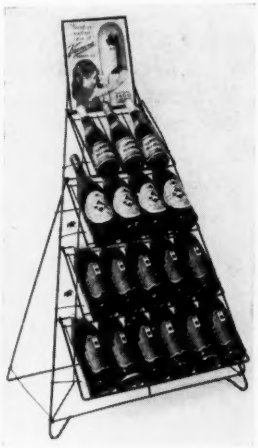


Sheet metal display for transparent bags



Wire display for bags

There have been many novel schemes of display that have worked out satisfactorily. One manufacturer wanted to get a prominent display of his liquid cleaner. He knew that he could not get it displayed prominently without providing a rack, and even then he did not believe that the merchant would display his cleaner prominently without some further inducement. He finally provided a rack with his bottled cleaner attractively displayed in the bottom of the rack and the top of the rack was a good-sized basket in which the dealer could display anything he wished. This gave the dealer a floor display of any product he wishes to feature, and also gave the manufacturer of the cleaner a display directly under the product which the merchant was featuring. This particular type of rack would be worked out for a great many products, and would work to advantage for both the dealer and the manufacturer.



Bottle display rack

Transparent packages dress up a wide variety of products but cannot accomplish definite results unless the packages are placed where they can be seen. Recently a large rack has been developed which permits the dealer to realize the maximum benefit from transparent packaging by creating a transparent package department in his store. A single unit under a recent test increased the sale of products on display 100 per cent. The test was made in several stores without any other promotion being given the product while the test was being made.

Often an attractive mass display may be secured with very little floor space required. A successful display was developed to display five varieties of flour which was packed in handy two-pound cloth bags with transparent cellulose wrapping. The five bags were neatly displayed on the top shelf and directly below were stacked twelve bags of the

variety displayed above. The rack occupied only the necessary floor space that would be required if the five bags had been laid down on the floor side by side, yet the rack was rigid, collapsed for shipping, and was inexpensive.

Beverages have thirst appeal and, if properly displayed, sales increases are usually gratifying. A neat, safe mass display of bottles is difficult due to their shape and possible breakage. Many effective racks have been developed —pyramid displays, round and rectangular displays, all requiring a minimum of floor or counter space. One of the most popular is the pyramid floor display that holds the bottles in the most attractive angle, is collapsible for shipping and inexpensive.



Polish group display rack

A display of a manufacturer's assortment always produces sales increases for each item in the assortment. Often a manufacturer is well known for the quality of a single product he produces, and, by associating all of his products, the public infers the same quality prevails throughout the line—which results in more sales on his less popular products. A round display of polish, cleaner, and top dressing for autos for use in garages, and filling stations was effective. Empty cans were soldered to the rack. The top was removable and the base set over it for compact shipping. A similar rack was made for a large manufacturer of marmalade located in England.



Tier wire rack display

A new package for oil immediately necessitated a new method of display. Oil in tin cans is becoming quite popular and it lends itself to display very nicely. Several types of racks have been developed that hold the can at an attractive angle and sufficiently small to set on the average filling station island. A rust and weatherproof finish that is attractive is necessary, and for this a Kromolite plating has been found efficient.

Multiple shelf counter racks that hold out candy bars in an inviting manner have been successful displays. These racks may be adapted to display most any small packages effectively. They are made in many sizes and shapes and all collapse flat to be shipped.



Display rack for spice cans

Rotating counter racks with projecting arms required little space and are effective displays for nuts, candy, potato chips, noddles, cake, confetti, and similar products that are packed in transparent bags. Several bags may be placed on each arm, thus carrying a good stock, and the display is not broken until the last bag is taken from each arm.

A small stairstep counter display is always good, especially if it pyramids a little for balance. This type of display has been used to increase sales on cigars, paint, flavoring, insecticide, greeting cards, literature, etc.

Spices are hard to keep straight on shelving, and it is almost impossible to stack them one on top of the other, without getting anything short of a mixed-up pile of small containers. A rack has been developed that will hold these small spice cans at an attractive angle and always keep them straight and orderly. This rack can be used on the shelving or can be set out on the counter when a dealer wishes to make a special on spices. The rack can be designed to display any other kinds of packages of a small size.



Round display for bottles

Self-service automatic displays that display and dispense packages with little more counter space necessary than if one package were displayed. These racks are filled at the top; the packages slide down and the bottom package projects out in front inviting one to take it. The stock is rotated and the oldest package is sold first. A similar rack has been an effective silent salesman for aspirin, soap, gelatin, spices, cheese, cookies and coffee.

Compact counter displays of bottled goods produce extra sales. Round bottle display produces attractive display from every angle, inviting you to help yourself. The displays are collapsible and inexpensive and require but small space when they are shown on the counters of retail establishments.

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STAPLING FOR SEALING AND DISPLAY

by J. L. Brown

STAPLING small items to display and identification cards is a rapidly growing method of increasing sales. It helps to eliminate pilfering—it gives the article an eye appeal—it carries good selling suggestions. For the manufacturer it gives a chance for identification and the opportunity of listing other items made by him.



Hand stapling store-packed grocery items

Recently the practice of stapling has developed a grouping of items to make a complete sale so that the sales clerk does not have to run about the store for screws or other combination items and always furnishes the right ones. This carding may be done in different places so that small economical units of production are needed. Furthermore, in some lines there are so many varieties of items requiring different sizes of staples that quick, inexpensive changes are necessary.

Stapling machines meet all of these requirements, and where bottles or other fragile items are to be carded it is easier to control the pressure and prevent damage. Stapling is speedy and secure—there is no need to wait for an adhesive to set and the staple will hold in any kind of weather or environment.

The fact that stapling machines are portable and can be driven by hand, foot-power, or motor gives them a universal use. This is a valuable consideration where there is a tendency to utilize dull hours for pre-packaging in stores where the pre-packaged goods, if put in transparent containers, not only help sell but speed up service in rush hours. Bags of all kinds are now more securely and quickly sealed in this way and, on the average, more cheaply.

Fruits and vegetables are being packaged in the field in some sections Crates are covered and cars and boats are lined with the same kind of hammer that puts cards on boxes, crates, or barrels. Shipping containers, too, are bottomed and sometimes sealed, with stapling machines with speed and added security. Such containers can be re-used when staples are moved with special remover recently made for this work.

Even the largest concerns with automatic equipment find need for supplementary packaging work, especially in trying out new packages before making large investments in equipment. All of these developments, so briefly touched upon, grow out of the principles developed in the desk fastener that revo-



Machine stapling of display cards

lutionized the handling of office papers. Its amazing hold on business throughout the world has just been strengthened by a radically new type of machine with greatly increased capacity—durability and ease of operation that is free from operating troubles of any kind. It is also a marked addition to product design in which any one concerned with design improvement will be interested.

PACKAGE TYING MACHINES

SEVERAL new types of automatic and semi-automatic tying machines have recently been placed on the market. The new principle embodies a manual cross tie operation while the package is still in the machine. The machine stops at the half-way mark, permitting the operator to turn the package 90 deg. to the cross-tie position. A greater range of sizes can be tied with the cross-tie using this principle than with the old method, and

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greater speed can be obtained. There is an added tightness also, as but one knot is tied. These manual cross-tie machines come in double, triple, and quadruple wrap and will handle all sizes of cotton twine, including cable cord. Three different ties can be made with any one of these machines—as, for example, the double wrap laundry machine. A cross tie can be selected on a medium or small bundle; a double wrap one way on a large, heavy bundle,



Package tying machine at confectionery plant

giving a strong tie; or a single string on a very light package. No time is lost in selecting the proper tie.

Another new development is the transparent cellulose bag tying machine. This machine makes a double or triple wrap of colored or rayon twine around the neck of a bag, and the typical long loop bow-knot sets off the appearance of the tied bag. This tie also hermetically seals the bag. Great speed is the feature of this machine.

There is now available a full line of tying machines to handle any and all packages or bundles, no matter what the size or weight.

CREPE WADDING

CREPE WADDING is extensively used as a packaging adjunct in the packing of tablets, capsules, ampoules, and various pharmaceuticals, cosmetics, bottled goods, scientific instruments, fragile and highly polished specialties. Such wadding to meet the several requirements should be white, soft, of dependable consistency in thickness and grade and be highly absorbent. Crepe wadding



Crepe wrapping used in packing liquids for mail shipment

absorbs sixteen times its own weight in moisture. It may be obtained in rolls, sheets, and pads.

For liquids sampling or shipping liquids by mail, domestic and export business, to meet the requirements of the Postal Regulations and the necessities of protection in a high degree, as well as offering light weight and other advantages, absorbent crepe wadding is an ideal packing.

This material, provided in various thicknesses and paper backed, ready for use, is also utilized for box top padding. Among the economies which have been pointed out by companies who have used this padding are the following: due to the paper backing and the flatness and uniformity of sheets, it can



Crepe wadding used as protective pad

be readily jogged in a cutter, while most padding has to be laid out separately, each sheet at a time; the paper backing eliminates the need of placing a pad-

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ding and a manila sheet on separately when they are applied at the wrapping machine.

Two developments in crepe wadding, of interest to the designer and buyer of packages and supplies, have occurred within the last two years. First a new form fancy corrugated wadding has come on the market. Secondly, colors in both the plain and corrugated types. Both developments increase the adaptability of these products from a decorative standpoint to modern requirements in packaging as well as in package display, and are bidding for increasing importance.

PAPER EXCELSIOR

LABORATORY TESTS have shown that paper excelsior absorbs up to 50 per cent more of the shock than wood excelsior. Actual packing tests showed time savings of 15 to 20 per cent. Despite these qualities the price of paper excelsior in the past curtailed its use. However, under present prices due to large scale manufacturing, some grades are more economical than wood excelsior.



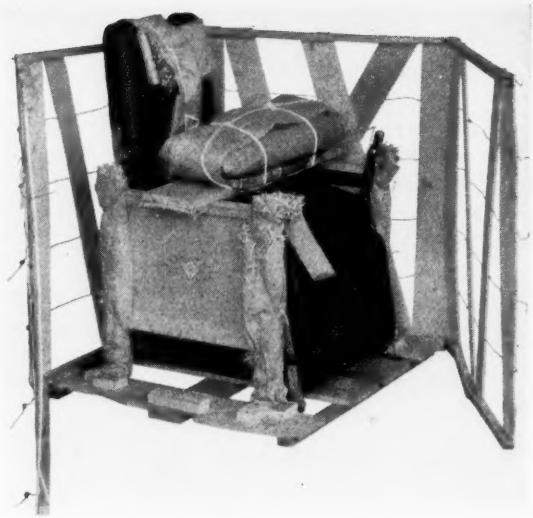
Paper excelsior used for protection and display

Paper excelsior impregnated with mineral oil reduced scald on fruit in storage from 65 to 4 per cent, according to the Department of Agriculture. This has made possible the packaging of produce without wrappers which heretofore destroyed the eye appeal of the fruit itself.

More and more food, cosmetic and novelty manufacturers are using brilliantly colored paper excelsior to dress up their packages. Notable examples have been Heinz, Armour, Beech-Nut and Kraft Cheese.

PACKING PADS

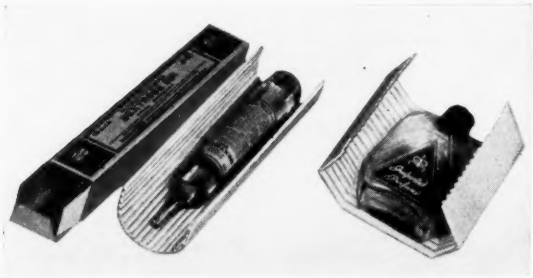
PACKING PADS consisting of a kraft wrapper filled with straw or wood excelsior have been a staple packing material for years. During the last two years, paper excelsior pads with sealed ends have been successfully used. In these there is no possibility of the filling sifting out and the absence of chips and hard wooden curls has eliminated marking. For furniture, ice-boxes, stoves, toys, tile, novelties, electrical appliances, etc., these packing pads give excellent protection at a minimum cost and permit faster, easier packing. They are manufactured in all sizes from $3^1/_2$ in. $\times$ 6 in. up to 15 in. and up to 72 inches in length.



Packing pads as used for protection in shipment

CORRUGATED ROLLS

IN most factories and stores, corrugated paper is an almost indispensable item of the packing room. For shipping or mailing, a light strong package can be quickly made with corrugated paper. The high corrugations serve to give efficient protection against shock. Such paper is furnished in convenient rolls of 250 ft., 36 in. wide. Where a particularly fine appearance is desired, a sulphite corrugated paper is used successfully. This material gives both shipping protection and distinction and is obtainable in rolls that are $20^1/_2$ in. wide and up to 250 ft. in length.



Corrugated paper combines lightness with strength in shipping

MAILING CONTAINERS

by Ralph L. Harden

THE UNITED STATES MAIL will carry most shipments within limit of weight and size, provided they are properly packed and prepared in accordance with Postal Rules and Regulations. Because of the varied products shipped and the rules which the Post Office Department has promulgated to protect them in handling, mailing containers come in many varied forms and types and represent a specialized branch of the container industry.

Parcel Post Box: This box is used for all unsealed mail and because of the metal fasteners that securely close the box, requires neither wrapping nor tying, the most widely used type of mailing container because of its simplicity, exceptional lightness and great strength.

Fourth Class Box: This box is made to meet the demands of shippers using sealed Third and Fourth Class mail. An exceptionally strong box which, in addition to the metal fasteners on the sides, has gummed flaps at each end which allow it to be sealed. The gummed flaps are an integral part of the box itself and are usually imprinted with a safety tint which prevents tampering without detection.

Registered Mail Box: This box is made in a style and weight to meet the exacting demands of the Post Office Department for registered mail and requires no wrapping or tying. Usually made from extra heavy stock to give added protection; it is sealed by means of gummed flaps on the sides and ends. These flaps are printed with a safety tint which prevents tampering without detection.

No-Break Box: This box is usually made in two styles: one with metal fasteners for unsealed mail and one with the sealing flaps for sealed mail; the basic construction, however, being the same. To the regular mailing box is added an inner lining of double-faced corrugated board making absolutely the strongest mailing box obtainable. This type of box is extensively used for fragile goods, diamonds and jewelry, glassware, electrotypes and all products that need maximum protection.

Metal Edge Box: A two-piece set-up box, re-enforced at the corners with metal straps. Exceptionally rigid and adaptable to the shipment of a wide range of products.

Letter Box: This is a two-compartment container which allows the first class letter or bill to be mailed together with second, third or fourth class matter and reach the addressee at the same time. The envelope compartment on the top of the box is an integral part of the box wrap. The window in the envelope compartment allows the address of the letter to serve also as the address on the envelope and box. The box is closed by means of metal fasteners.

Returnable Box: This box is made in two styles, both having the same general purpose of allowing the recipient to make convenient return to the sender. There is a cut-out in the cover through which a reversible address card shows. For memorandum or returnable shipments, it is only necessary to reverse the printed address card and the box is ready for return trip. Addressing and stamping for both forwarding and return can be done before the box is shipped on its original journey.

Screw Cap Containers: For shipments of liquids over four ounces the Post Office Department requires that they be mailed in a water-tight tube closed by means of a screw-top cover with sufficient screw-threads to require at least one and one-half complete turns before it will come off. Bottles must be surrounded with bran, wadding or other absorbent material in sufficient quantity to absorb all the liquid in case of breakage.

Rigid Mailer: For photographs, sketches, proofs or any matter that must be shipped flat, this type of mailer should be used. A single piece of double-faced corrugated board incorporated with a wrap of heavy kraft paper allows the package to be shipped either sealed or unsealed.

Corrugated Boxes: For products of large size or heavy weight, containers completely made from corrugated board are used. These are made in one, two or three pieces and are, usually, sealed with gummed tape.

Generally speaking, all mailing containers fall into the above classes. Unusual products sometimes call for special treatment but their design incorporates one or more features of the above styles.

FIBRE DRUMS

DURING the past decade the fibre drum has been developed as a highly satisfactory container for the shipment in bulk of food products, dyes, colors, chemicals, molding materials and other dry products. The fibre drum is available in sizes ranging from one gallon to sixty gallons in capacity and is used for shipments ranging from five to three hundred and seventy-five pounds net. While various types of fibre drums are on the market their construction is regulated by Consolidated Classification Rule 41, Section 12, and also by Interstate Commerce Commission 21A specifications which cover fibre drums for the shipment of insecticides and other class B poisons and also of inflammable solids and oxidizing materials. (*Continued on page 111*)

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TYPES OF MAILING BOXES

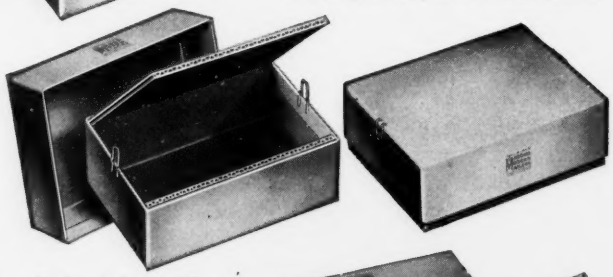






Letter box, a two compartment container which allows a first class letter and second, third or fourth class matter to be mailed together

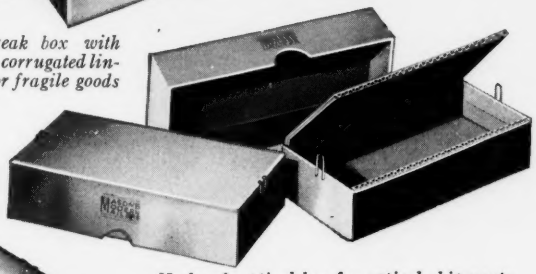
Parcel post box for all unsealed mail



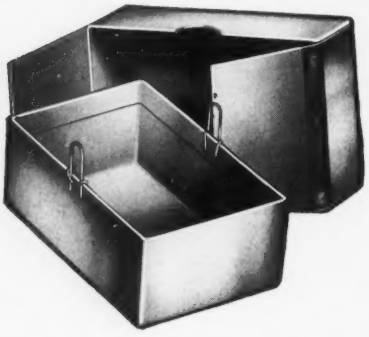
No-break box with inner corrugated lining for fragile goods

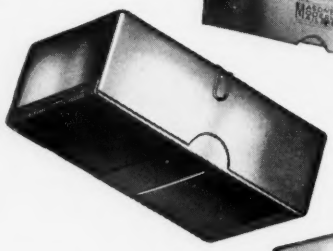


Screw cap container for mailing liquids



No-break optical box for optical shipments

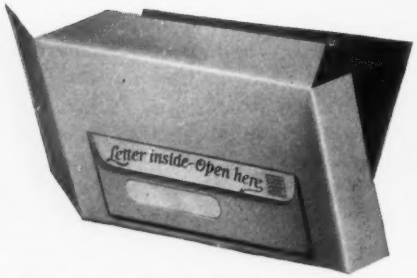




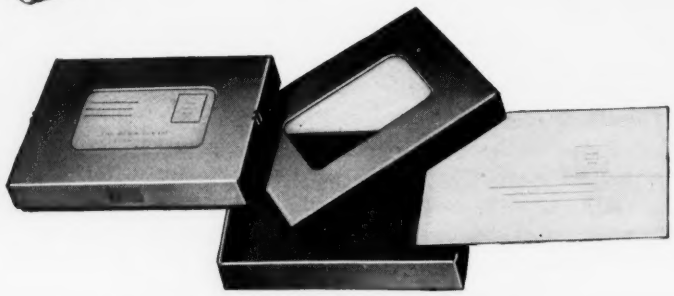
Sealing flap box made in several styles for all classes of sealed mail



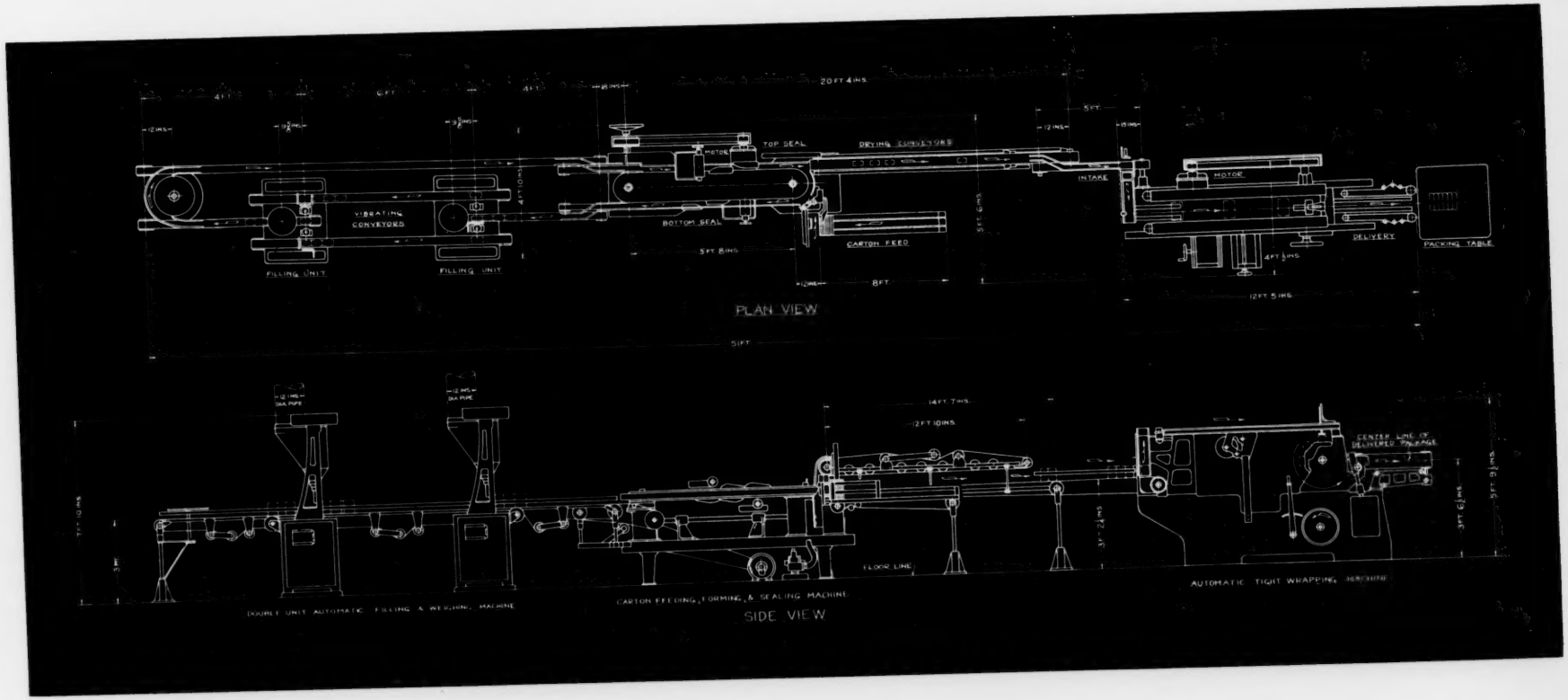
Air mail box



Rigid mailer with or without letter compartment for articles that must be shipped flat



Returnable box for memorandum or returnable shipments

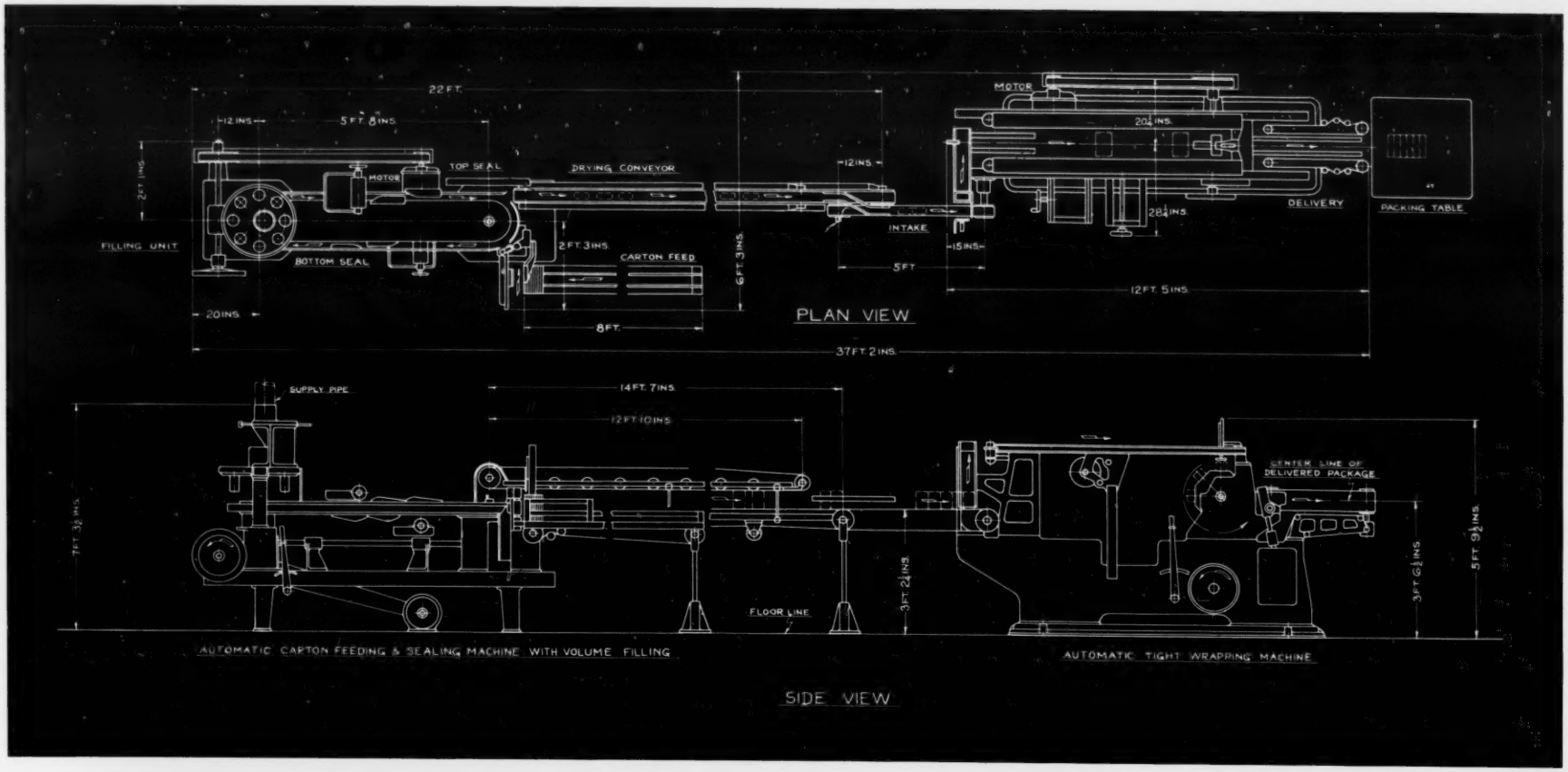


PLACEMENT OF PACKAGING EQUIPMENT

OF CONSIDERABLE importance is the proper placement of equipment in the packaging plant. Whether the operations performed are manual, semi-automatic or full-automatic, the arrangements of the several units should be such as to provide economy of floor space and permit the work of each operation to precede that following with maximum dispatch and convenience.

Above are illustrated floor and elevation plans showing a complete line consisting of an automatic filling machine and then connected with the automatic tight-wrapping machine. This equipment would automatically feed the cartons from a supply, bottom seal them, then carry the filled cartons on a conveyor belt into the filling machine where the cartons would be filled, either by gross weight or by measurement, the filling mechanism being suitable for powdered non-free flowing products. The filled cartons are then carried back into the sealing machine for top sealing and then into the tight-wrapping machine for tight-wrapping with the printed label. If a printed carton is used and not tight-wrapped then the line would be used without the automatic tight-wrapping machine.

This line has a production up to 60 to 70 complete packages per minute. The machines are made in various styles and sizes and are changeable or adjustable within certain limits. The drawings from which the reproductions were made were furnished through the courtesy of The Stokes & Smith Company.

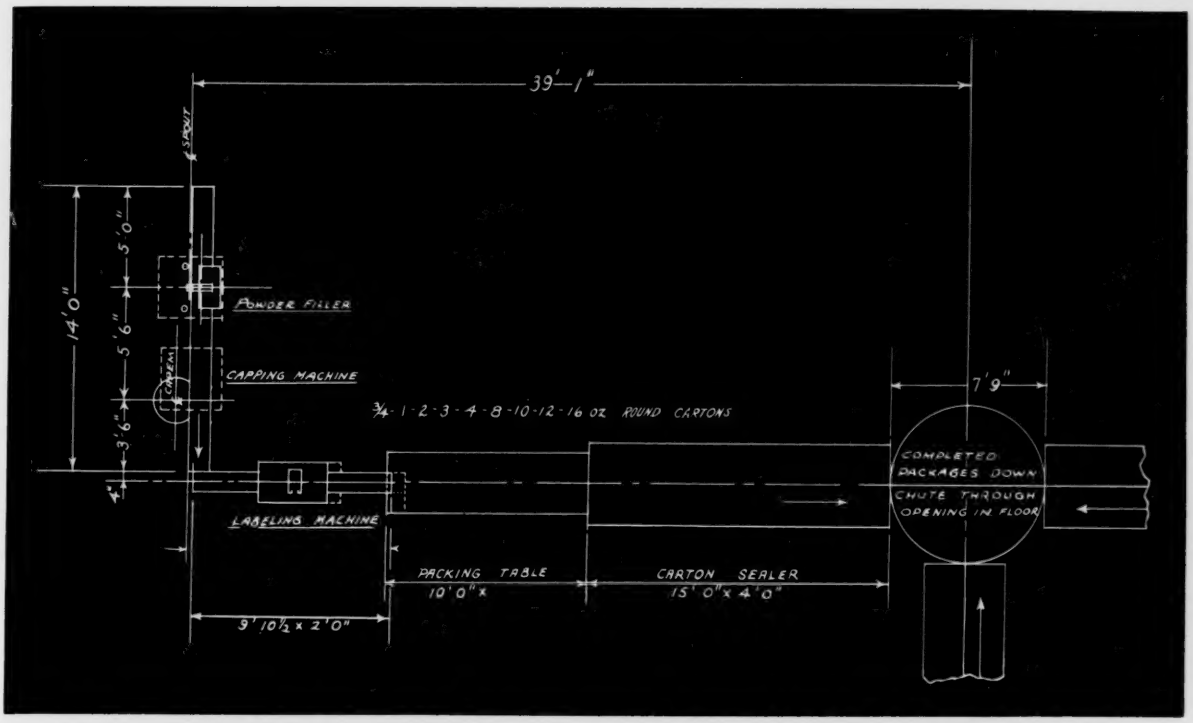


SHOWN above in floor and elevation plans is a complete packaging line which includes an automatic carton filling and sealing machine in combination with an automatic tight-wrapping machine. This line would automatically feed the cartons from a supply, bottom seal them and fill them with the desired amount of material, filling through special adjustable measuring flasks arranged in a turret mechanism, particularly suited for free flowing products such as salt, sugar, soap powders, etc. After filling, the cartons are automatically top sealed and carried on a conveyor into the tight-wrapping machine where they are automatically tight-wrapped with the printed label and discharged ready for packing in the shipping containers.

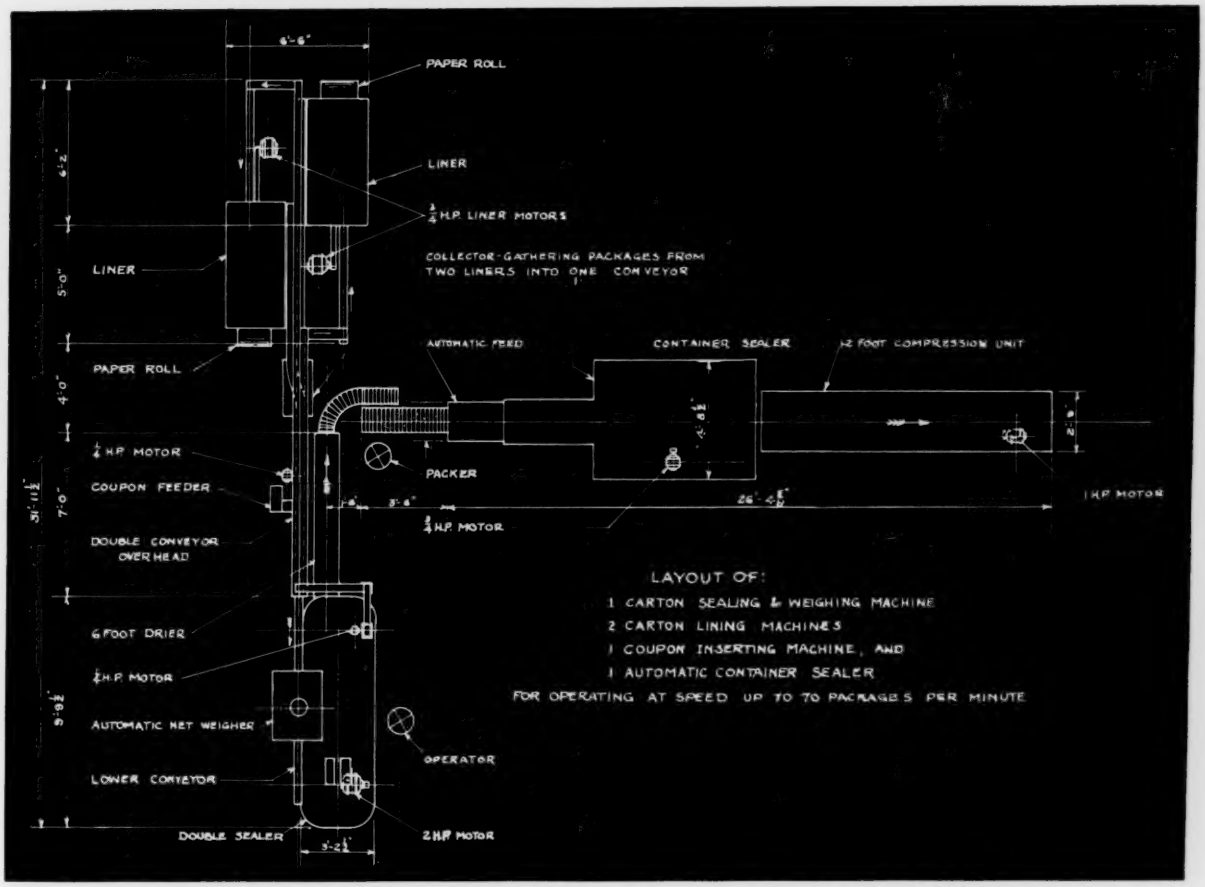
If a regular printed carton is used and not tight-wrapped then the same carton filling and sealing machine would be used without the tight-wrapping machine. This complete line has a production up to 60 to 70 complete packages per minute. The machines are made in various styles and sizes and are changeable or adjustable within certain limits. These drawings have been furnished through the courtesy of Stokes & Smith Co.

The following pages show similar diagrams which relate to typical installations of equipment for the packaging of both wet and dry products. In addition to the actual packaging units, frequent use is made of various types of conveyors. In the planning of any equipment placement it will be found of advantage to consult with the manufacturers of packaging machinery.

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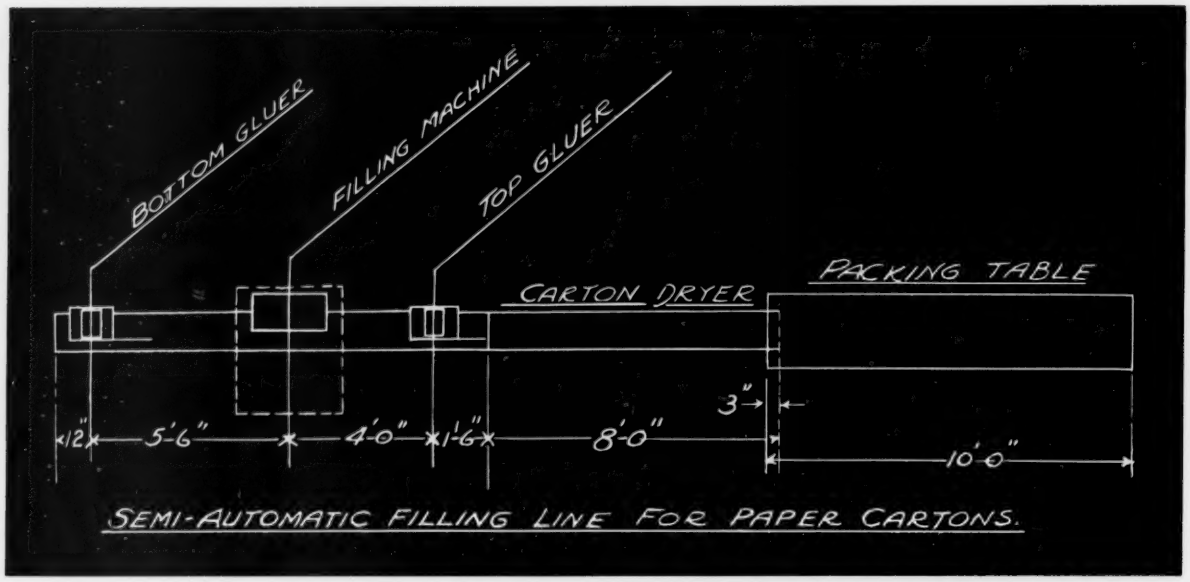


Installation for various kinds of dry materials. Three filling units discharge into one chute

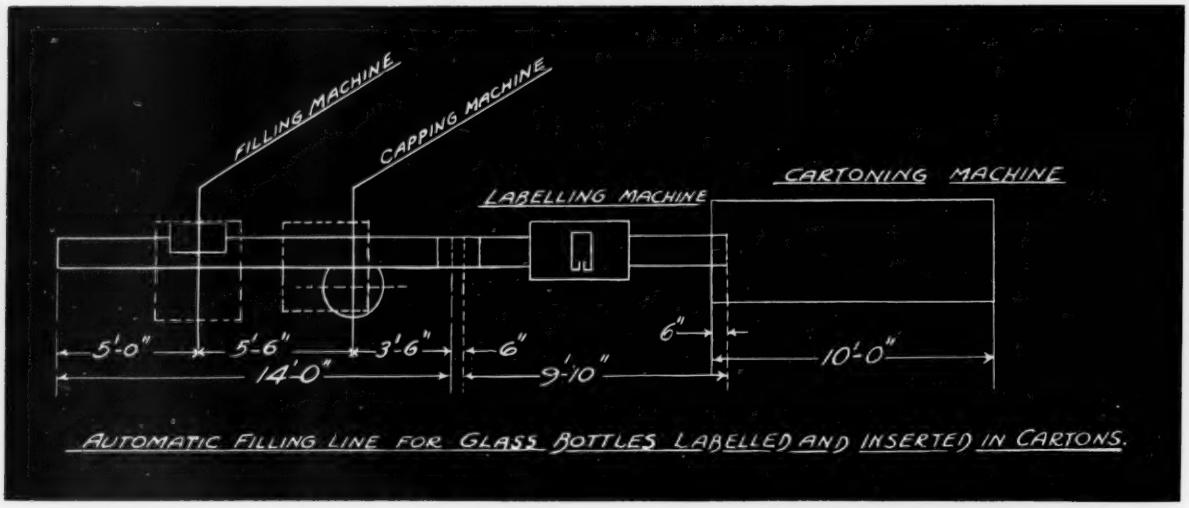


Floor plan showing complete packaging line for cartons. Courtesy of J. L. Ferguson Company

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Floor plan showing typical installation of semi-automatic equipment. Courtesy Consolidated Packaging Machinery Corporation



Floor plan showing typical installation of automatic filling line. Courtesy of Consolidated Packaging Machinery Corporation

CARTON AND CAN FILLING EQUIPMENT

by William K. Embleton

DEVELOPMENT and perfection of automatic machinery enables the packer to obtain quantity production at lower costs, to standardize the sizes of his packages, and enable him to carry to the consumer, through the message printed on his package, a standard name of trade mark by which the consumer can again seek his particular brand of products. This insures the packer his reward for maintaining qualities.

There is no necessity for any manufacturer to depend on hand labor in assembling his package, as American machine designers have developed and refined automatic machinery for every packaging purpose to such an extent that today a machine is obtainable whether the packaging process follows standard practices or is of a special nature.

Inasmuch as machinery must be considered somewhere in all packaging production plans, the first consideration is the positive necessity for careful attention and preparation of the various component parts in the make-up of the package. All materials entering into the make-up of the package should

be purchased with a view to their efficient handling by automatic machinery.

In considering a carton product, the size of the carton should be carefully worked out to obtain the best dimensions for easy machine handling. The construction of the carton should be carefully planned to be sure that the side gluing seams are in proper position, and the side flap cut to the proper length. Careful attention to these details in the beginning will save both the packer and the machine manufacturer a great deal of trouble and grief when the time comes for installing machinery.

This does not mean that cartons, protective papers or labels for machine handling differ importantly from the same materials that would be used for hand packing. It simply means that there are certain necessary features and specifications to be followed to make sure that all materials will follow uniform lines. All cartoning materials handled on automatic machines are manufactured on accepted commercial standards, but it must be borne in mind that a machine is made of iron and steel, along fixed lines, and if the material fed to the machine differs in size and shape, then trouble is bound to ensue.

As an illustration, if sealing and filling were the only consideration, a carton might be planned to obtain the largest possible face, perhaps because an advertising advantage might be seen. In doing so, the base of the carton would necessarily have to be narrow, so much so that when handled on a machine, this narrow base would mean a constant tipping of the carton, with its attendant troubles and delays.

Therefore, in planning a carton, care should be taken to have the various dimensions properly proportioned. The ideal specifications are to have the face of the carton approximately twice the thickness, the height one and one-half times the width. The cubic content of the carton must be carefully considered. If a pound of ground coffee is to be packed by hand, a carton containing about 66 cu. in. would be sufficiently large for the reason that there is no time limit to the tamping or settling of the coffee, whereas if the carton were handled by machine a cubic content of 72 cu. in. would be necessary for the reason that the carton passes through the machine on a certain definite time schedule and receives a definite amount of tamping. Machine experience proves that with a carton containing 72 cu. in. a pound of ground coffee would settle nicely just below the score or folding lines of the side flaps.

Labels and wrappers with the grain of the paper running the same as specified by the machine manufacturer should be obtained. Paper curls with the grain of the paper and when labels or wrappers are moistened, the paper stretches with the grain. If the labels are handled by hand, sometimes it is not important which way the labels curl or the way the paper stretches, but if handled by machine the curl and stretch must be one way, and the same with every label.

Label and wrapper manufacturers are always glad to follow definite specifications for grain of paper when so ordered. Again, it is simply a question of care in ordering and being sure that the specifications are correct.

Any manufacturer of automatic packaging machinery will be glad to furnish definite specifications covering the construction of cartons or the make-up of labels. Securing these details will save many weeks of labor later on when machine production is planned both on the part of the packer and the machine manufacturer.

Many packers hesitate in the beginning to think of using machinery, believing that automatic machinery will prove too expensive for their purpose. Investigation will prove this is not true, as machine manufacturers are able to furnish equipment that will economically fit in with the requirements, not only of the larger packer, but also with the packer whose output is small.

The market today offers everything from inexpensive semi-automatic equipment, which operates at comparatively low speeds, to the highly specialized fully automatic equipment, operating at the higher speeds, and no matter which class of machinery is used, they are all planned so that with their use outputs can be obtained more efficiently and economically than by hand labor.

Packers just establishing a carton packaging business can install a semi-automatic carton sealing machine. This would require the services of an operator and would produce from 12 to 15 satisfactorily sealed cartons per minute. For the weighing operations, he can obtain a small semi-automatic weighing machine which will operate at the same speed as the carton sealing machine. These two machines can be hooked together by connecting conveyor belts so that, as the cartons are sealed, they are automatically passed along to the weighing machine. An operator would be necessary at the weighing machine, but even considering the investment of the two machines, the upkeep charges and the labor costs of two operators, packages can be produced at a far less cost than the same number can be produced by hand labor.

As outputs increase, speedier and more fully automatic equipment will be needed. The semi-automatic machines can then be discarded in favor of a battery of machines with which can be performed the entire operation of picking up the cartons one by one, feeding them to the sealing machine, then automatically passing them to the weighing machine and, after the material is weighed and filled into the sealed cartons, passed to the sealing machine for closing and sealing the tops.

Should the product be of a character to require extraordinary protection against atmospheric or other conditions an inner paper bag liner would have to be used. This lining would require an additional machine placed between the bottom sealing

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and weighing machine, the lining machine taking paper from a roll, cutting off the proper length, forming the bag and inserting the finished bag into the carton.

A set of machines of this character would make the entire packaging process entirely automatic, only one attendant being necessary to see that the machines are properly oiled and kept in good running order.

Equipment as above described can be expected to deliver thirty complete sealed, lined and filled packages per minute.

For the packer whose output exceeds 15,000 packages a day, equipment of higher speeds will be necessary and equipment at 60 packages per minute will interest him. This high speed equipment performs the same operations in the same manner as described for 30-per-minute equipment in the same general line-up; each individual machine, however, is more sturdily and elaborately constructed, and naturally, this heavier equipment is considerably more expensive than that of operating at the lower speed of 30 per minute.

The equipment just described would be used by the manufacturer packing in the plain printed carton, used without any outer wrapping. Materials such as tea, coffee, spices, sugar, rice, borax, cocoanut, drugs, poultry and stock remedies, macaroni, starch can be packed without any further protection than the printed carton with often an inner lining.

In many instances the character of the material packed may demand a package that would offer greater strength than the printed carton, and would also embody superior protective features. The modern machine designers have met this higher requirement with a machine called the tight wrapper, which produces the highest type of package yet devised. Reference is made to this type of packages elsewhere in the PACKAGING CATALOG.

The foregoing treats of rectangular packages only. Separate types of machines are necessary for producing round packages, but as in the case of the rectangular package, automatic machinery can be obtained for every process in the make-up of the round package, first weighing material and filling it into the package, then applying the cans and labeling.

Round packaging equipment is manufactured in various types, ranging from the semi-automatic at slow speeds to the high speed fully automatic equipment operating at a speed of 60 per minute.

The weighing machine units include those that will weigh gross, that is, including the weight of the container with the weight of the goods; others that weigh the material net. This is accomplished by weighing first in calibrated and balanced receivers, after which the material is poured into the waiting containers. Net weight weighers are particularly desirable where the material handled is of an expensive nature and extreme accuracies desirable. The saving in wastage alone with this type of machine often pays the cost of the machine in a short time.

Practically every labeling need can now be met with machinery of standard construction. This includes loose labeling machines, which apply the label loosely around the can, just applying the glue at the seam of the label or a rim of glue around the top and bottom of the label. Types of loose labeling machines are manufactured for labeling either round or rectangular cans. Then, there is the shrink-tight labeler, which is necessary for use when cans with high outstanding beads are to be labeled, those similar to the standard baking powder cans, or where the covers of the cans are of larger diameter than the bodies. Loose labels cannot be used with this type of can, for the reason that the high outstanding bead or the larger covers hold the label away from the body of the can, producing unsightly wrinkling, and a label only half attached.

The shrink-tight labeler overcomes this difficulty by passing the label through a bath of tepid water. This allows the label paper to stretch, the stretch in the label paper being about $^3/_8$ in. to the foot. Adhesive is then placed over the entire unprinted surface of the label while it is wet; it is then carefully registered around the can, which is passed along to an automatic dryer. The air in this dryer is heated. A series of revolving shelves move slowly around, so that the label dries gradually, and in so doing, shrinks tightly around the high outstanding bead or the oversized covers, as the case may be, without the slightest wrinkle, and insuring the covers being held tightly to the bodies of the cans, eliminating any possibility of leakage. About one-half hour is required to make the journey around the dryer, after which the can is automatically ejected and is ready for subsequent packing operations.

Practically all types of carton packaging, filling, wrapping or labeling machines are constructed so that they can be adjusted to several different sizes of cartons within reasonable range. Different commodities can be handled on the same machine where the characters of the commodities do not change too radically. This is done by fitting the filling machines with hoppers especially designed to meet the requirements of the different products.

Care should be taken when purchasing machines to choose manufacturers who can assure a reliable service that will maintain the machines in good working condition, and so guard against any break in packaging operations which will curtail output.

CARTONING MACHINERY

by Charles L. Barr

FOR several years now manufacturers of cartoning machines have been concentrating their talent to develop greater speed and greater efficiency. This concentration of attention has produced the smooth-running, highly efficient cartoning machines that all prospective purchasers of this type of equipment have come to take as a matter of course. Speeds of 150 per minute have become rather common, and 200 per minute and even higher in some few cases is an actual fact.

While improvement in speed and efficiency has been the chief objective, this could only be achieved through general refinement in design—a careful and intelligent study of each element and mechanism and motion. As is invariably the case, the incidental improvements are perhaps of greater interest than the principal objective. These incidental improvements—quietness in operation that contributes so materially to employee efficiency, and smoothness that adds years to useful life, greatly reducing upkeep cost—are tremendously important contributions although not quite as spectacular as the progress made in the matter of speed.

It seems now, however, that purchasers of cartoning machines find available machines capable of greater speed than they are able to use and, as a consequence, manufacturers have turned their design attention to the matter of adapting their machines to meet unusual conditions—to produce the out-of-the-ordinary packages or to operate under out-of-the-ordinary conditions.



Cartoning machines completely assemble these packages. *See page 108 for descriptions*

The products shown in the illustration on page 107, together with the following descriptions of the packages and their method of assembly in cartoning machines, strikingly illustrate what has been accomplished along these lines.

Beech-Nut Packing Company. "Beechies."

Candy coated chewing gum tablets are dumped in a hopper. They are automatically fed from this hopper and counted out in groups of twelve. Transparent cellulose window cartons are fed from a magazine, opened up, twelve tablets inserted and the carton closed by tucking the end flaps.

Northam-Warren Corporation. "Glazo."

Bottles are brought in upright, without handling, from the previous operation. They are automatically laid over on their sides preparatory to cartoning. Circulars are fed from a magazine, folded properly; cartons fed from their magazine, expanded; circular and bottle inserted and the carton closed. One unusual feature of this job is the inclusion of a color card accurately reproducing the various shades in which this product may be obtained. This color card is inserted automatically inside the carton, the colors showing through apertures in the carton as illustrated.

Pro-Phy-Lac-Tic Brush Company. "Pro-Phy-Lac-Tic" Tooth Brushes.

The unusual feature of this package is the provision made for showing the brush itself through the carton. This ingeniously contrived box was developed by the Pro-phy-lac-tic Brush Company. The cartoning machine manufacturer found it possible to adapt his machine to do the cartoning at a very high rate of speed.

Rockwood and Company. Package of Baking Chocolate.

The machine for this job automatically wraps each half-pound cake of chocolate in dry waxed wrapper which is cut from a roll, and then automatically cartons it in the characteristic bevel-edge carton. Work is done at a high rate of speed. The unusual in this machine consists of provision having been made to wrap the cakes of chocolate in printed transparent cellulose should the producer choose to put this product out so wrapped. Machine is equipped with photo-electric cell.

Franklin Baker Company. Packages of Shredded Coconut.

A condition to be eliminated in the packaging of this product is loss of moisture. The shredded coconut is weighed out and placed in glassine paper packets similar to the packets used for certain types of tobacco. These packets are automatically carried into the cartoning machine on a conveyor belt. The cartoning machine is equipped with means for cutting a waxed wrapper from a roll, wrapping the packet in a special manner, sealing this wrapper; feeding a carton from its magazine, inserting the wrapped packet and closing the carton by gluing the end flaps. Machine is also equipped with means for automatically stamping on the date of production.

Quaker Maid Company. "Encore" Egg Noodles.

The cartoning machine for this job is equipped with a long conveyor made up of metal pockets. Each pocket is lined with a dry waxed paper wrapper which is automatically cut from a roll. The product is weighed out and dumped into these lined pockets, after which the wrapping is completed; carton fed from a magazine, product inserted, carton closed by gluing and the date of production stamped on the carton.

Pond's Extract Company. Pond's Face Cream Tubes.

One of the latest types of high speed, highly efficient cartoning machines produces this package. Circular is fed from a magazine, folded properly, inserted with tube into carton and carton closed by tucking end flaps at a speed of 150 per minute.

McKesson & Robbins. Milk of Magnesia bottles.

Adjustable machine, both 8-oz. and 16-oz. sizes being produced on the same line. Unusually large circular fed from magazine, folded and inserted with bottles into carbon, which is closed by tucking end flaps. Bottles are brought into the machine upright, without handling, from last previous operation.

Campana Corporation. Campana's Italian Balm.

Adjustable machine for 35- and 60-cent sizes. Bottles brought in upright, without handling, from last previous operation. Circulars fed from magazine, properly folded, inserted into cartons, which are closed by tucking end flaps.

Boston Woven Hose & Rubber Company. "Good Luck" Rings.

Rubber jar rings are stacked in magazines from which they are fed automatically in groups of twelve. Cartons are fed from their magazine, expanded, groups of twelve rings inserted and cartons closed at a speed of 120 or better per minute. The difficulty in handling rubber jar rings and counting them out accurately made this a most trying job.

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AUTOMATIC WRAPPING MACHINES

by Alden French

THE year 1933 has been chiefly one of refinement and improvement in the automatic wrapping machine field. The alert manufacturer of package goods has realized more than ever the importance of the package itself in selling his product and has given particular attention during the past year to improving its appearance and protection and to increasing its convenience to the purchaser.

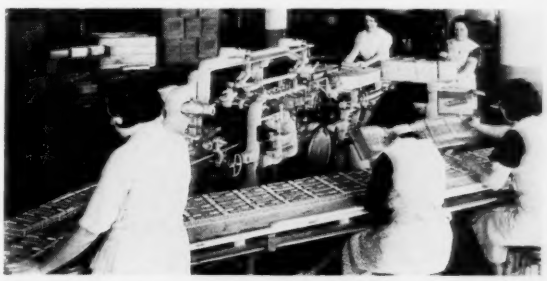
One of the important influences bearing upon improved appearance has been a further development of the process of printing on transparent cellulose. The beautiful effects now obtainable have served to popularize further this form of wrapper, but its increased use has brought new problems to the wrapping machine manufacturer. For mechanical application, this wrapping material must be used in rolls—no satisfactory method has yet been found for feeding it in sheets. The development of the photo-electric cell or "electric-eye" form of control for accurately registering printed transparent cellulose is no longer new, but its spread into new fields has brought demands for high speed and accuracy of registration that have hitherto been impossible with existing mechanisms.

Up until this year, the electric eye could be used only on intermittent paper feeds. The application of the eye principal to a continuously moving web of paper has greatly increased the speed of registration and opened up new fields for this form of wrapping. While the present development has not gone much beyond a speed of 300 a minute, higher speeds are contemplated and will undoubtedly be worked out in the near future.

A further refinement in the wrapping of packages has been the development of easy opening devices. A properly sealed transparent cellulose package is sometimes rather difficult to open and various schemes have been devised to make this process easy and without in any way destroying the effectiveness of the wrap. For one chewing gum manufacturer, who is putting a transparent wrapper on the outside of his package, a special device has been made which puts a fold or pleat in the cellulose and cuts the wrapper in such a manner that a tab extends slightly beyond the edge of the package. By pulling this tab, the transparent cellulose tears easily and neatly and the wrapper can be removed without any trouble.

For another chewing gum manufacturer a somewhat more complicated device has been made. A narrow strip of paper tape is placed inside the wrapping but is so arranged that one end is left outside. A pull on this tape tears the end off the outer wrapper so that the individual sticks can be removed. This same manufacturer is using an outer wrapper of printed transparent cellulose which closely resembles his former printed wrapper and this is in addition to a piece of reinforced foil that is first placed around the five sticks. A small hole is punched both in the foil and the transparent wrapper to accommodate the end of the tape but these holes are so placed that they come at the overlap of these wrappers and do not destroy the effectiveness of the airtight seal. A more complete description of this operation will be found on page 110.

In the field of adjustable wrapping machines still further advances have been made. The feature of adjustability has probably been brought to its furthest state of advancement in bread wrapping machinery where changes in sizes can now be made rapidly and without the use of extra parts. A machine recently developed primarily for the wrapping of bread has been adapted for cartons, particularly the large sizes used by the biscuit manufacturers, and the ease with which this machine can be changed for different sizes is far beyond anything so far developed in this line.



One type of adjustable wrapping machine in toiletries plant

New packing machines installed by the large cigarette companies have required higher speed in transparent cellulose wrapping. A new machine has been developed to run at 150 packages per minute, thus synchronizing perfectly with the speed of the new packers.

While it cannot, strictly speaking, be called a wrapping operation, a new means for sealing the tops of milk bottles in transparent cellulose has been perfected. By means of this development transparent cellulose is unwound from a roll, cut into a square sheet and drawn tightly over the neck of the bottle and then held in place by means of a waterproof paper tape. This has made available a new merchandising idea for the milk industry and quite a number of successful installations have been made.

Minor changes and improvements are constantly being made in existing wrapping machines as they must keep pace with increased speed of production and the demand for better packages.

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WRAPPING PACKAGES BY PHOTO-ELECTRIC CELL

MANY manufacturers who are packaging food and other products in cartons and wrappers are today making use of photo-electric cell controls which are incorporated in the wrapping machines.

All food products that need protection have usually obtained that protection by wrapping the printed carton in a sheet of paraffine paper or some other protective paper. This outside wrap over the printed carton was, of course, obtained in as transparent a sheet as possible. However, there were objections to the message on the printed carton being obscured by a semi-transparent sheet on the outside of the carton. The following will serve as one instance in which this objection was successfully overcome by the manufacturer.

Heinz Rice Flakes contain about 15 per cent more cellulose than the average flake of its kind. This means that they are much more susceptible to moisture absorption and will go "stale" much quicker than the average flake. Accordingly, the Heinz people made sure to protect their product, and in the original package they used a printed carton with a waxed paper liner. In addition to the liner the flakes were further protected by two sheets of extra-transparent paper wrapped and sealed around the carton. These two sheets of semi-transparent papers, however, obscured the printing on the carton.

It was then proposed to print the outer wrapper of waxed paper and leave the carton plain. But it was found on wrapping the cartons that only occasionally would the design on the paper register in the proper place on the cartons. Any error in registration would continue to multiply itself rather than correct itself so that before long the design that should have been on the face of the carton was on the top of the carton. Obviously this type of wrapping could not be adopted unless some way could be suggested to keep the registration in place.

This solution was found in the application of the photo-electric cell and corrective mechanism which incorporated this device was placed on each of the automatic wrapping machines. Since the Heinz company put out this package many others have become interested in it, and some of the most recent examples of photo-electric cell wrapped packages which are to be found on the market are the following: Goodman's Matzos, Educator Toasted Cheese Thins and Kellogg's Corn Flakes.

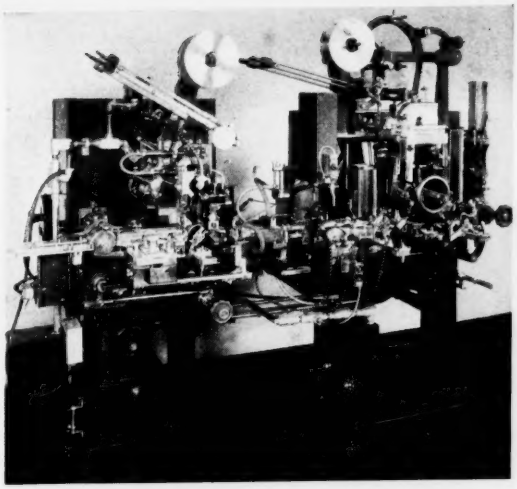
Another example in which the photo-electric cell is utilized to obtain accurate registration of a wrapper on a package is that which is now in use at the plant of the American Chicle Company. Here machines, recently installed, perform a complicated operation in wrapping gum at high speed. Single sticks of gum first are wrapped in waxed paper and banded at a speed of about 600 per minute. The waxed paper is folded on the ends, each stick is banded, and the band is glued. The sticks are then stacked up in piles of five, and are wrapped in a second covering of glassine-lined or reinforced foil.



The "electric-eye" enables correct placement of printed wrapper

Before this foil is applied to the package, a hole is punched in it; a strip of wax is printed on it to make the seal; and a tape, run through a wax bath, is applied and stuck inside. The foil's cut-off is such that the tape sticks up through the punching and, on account of the wax, sticks to the foil on the inside, and will not slip out. The package passes through apparatus which makes end folds and applies wax as they are being folded, thus making a practically hermetically sealed package.

After this, the package is carried automatically through cooling apparatus to set the wax, and into a second machine which wraps it in printed trans-



Wrapping machines equipped with photo-electric cell

parent cellulose. As this cellulose is being fed down to the machine, it is punched and slotted so that the tape projecting from the foil will come through the hole in the cellulose. The feeding of the cellulose is controlled by a photo-electric cell, and accuracy of registration—of paramount importance—is within $^1/_{64}$ in. plus or minus. Packages are discharged from these machines ready for boxing. The machines operated at 120 completed packages, or 600 single sticks, a minute.

FIBRE DRUMS

(*Continued from page 99*)

Fibre drums have been found convenient, attractive, and safe. They protect their contents over long periods of time and have been developed to carry safely such sensitive products as malted milk in bulk, and may, if properly treated, safely carry semi-liquids such as adhesives, greases, and creams.

Fibre drums are light, sanitary and usually have full open tops. They are low in cost. They lend themselves to attractive display labeling and in general are being used to merchandise bulk products along the same modern lines that apply to retail packages.

TIGHT WRAPPED PACKAGES

by Carl E. Shaeffer

THE tight wrapped package is now a standard type of package with many manufacturers and packers of food and grocery products. This type of package was first adopted a number of years ago by some of the cereal manufacturers, where its greatest advantage was in keeping the weevil from getting into the contents. This style of package proved so satisfactory for cereals that it has been adopted for use with many other products, such as flour, soap powders, salt, coffee, etc.

Various types of cartons with inside bags or liners can be used with the tight wrapped package, as well as different types of opening devices. In the salt industry the tight wrapped package is now being used by many of the leaders, and one of the most satisfactory salt packages is a carton made of asphalt-lined board which is tight wrapped on the outside. For coffee, wax or parchment paper liners are generally used on the inside of the carton and the cartons are tight wrapped on the outside. For flour, the regular chipboard carton is used and some of the packers have these made with a blue lining on the inside which gives a whiter color to the flour. Various combinations of cartons, liners, and labels can be used to insure the product getting to the consumer in the best possible condition.

Another advantage of the tight wrapped package is for the packer or manufacturer who packs private label brands for different customers. If he uses the tight wrapped package he can use the same carton and merely have different labels for the different brands. This means a saving as it is not necessary to carry a number of different printed cartons on hand. With the tight wrapped package various types of labels giving different styles of end folds can be used to suit the conditions. Some labels are die-cut so that each end flap of the label is glued down separately. Others are rectangular, making a gusset fold on the end.

Recently the varnished label has been adopted by a number of packers and manufacturers using the tight wrapped package, and the package tight-wrapped with the varnished label makes an ideal container for many food and grocery products. The varnished surface makes the package attractive, the colors show up to advantage and the varnished surface will not accumulate dirt or dust as quickly. Also, the package is more moistureproof as the varnish gives the extra coating on the outside.

The machines for tight wrapping packages are built in different styles and types to suit the conditions. There is a semi-automatic machine which is hand fed and adjustable for different sizes and has a production of 10 to 15 tight wrapped packages per minute. Then there is the fully automatic machine usually built for one size package to be wrapped and has a production of 60 to 70 tight wrapped packages per minute.

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Group of tight wrapped packages for food and household products

With the tight wrapped package the plain unprinted cartons are filled and sealed in the regular way, there being a number of different makes of semi-automatic and full automatic carton filling and sealing machines on the market. After the carton is filled and sealed it is fed into the tight wrapping machine which automatically feeds the paper label as the carton enters the wrapping machine, glues the label all over on the blank side with a thin coating of adhesive and wraps it tightly around the filled carton, making a perfectly tight sealed, non-sifting, weevil-proof, and attractive package. This package costs practically the same as, or possible a little more than, the printed cartons, but there are so many advantages in the tight-wrapped package which more than offset any slight additional cost. Some of these advantages are:

Better appearance of the package, stimulating sales. Printed or lithographed colors show up to better advantage on paper labels than when printed directly on cardboard.

Greater strength. The wrapper glued tightly to the carton strengthens the package, especially at the corners where there is generous overlapping of the paper for extra reinforcement.

Better preservation of contents. The contents of the package are fully protected against dust, odors, weevils, etc., and there is no loss from leakage or sifting so that the package and its contents reach the consumer in perfect shape.

DRY PRODUCT FILLING

by A. J. Sterling

DRY PRODUCT FILLING is fundamentally divided into three distinct classes of machinery or methods: packing—wherein the quantity is determined by the density in the container; volume—wherein the quantity is determined by measuring the material by means of a definite number of turns of an auger; weighing—wherein the quantity is determined by scales but equipped with force feed into buckets and a settling conveyor.

The construction of machinery to accomplish any of the described methods varies according to the individual manufacturer and his engineering capabilities. Some of these machines are more complicated than others and it is well, therefore, to remember that simplicity of construction and performance is that which stamps fine engineering and longevity of the machine with the least possible amount of expenses for upkeep. It is this simplicity of construction that goes far toward procuring exactness in weights. Too many cams, electrical contacts and unnecessary movements bring about the reverse of exact weights and the need of too many mechanics.

All dry materials can be divided into two general classifications—free flowing and non-free flowing materials. In a way, the names of these two divisions are self descriptive, but there are many kinds of materials which apparently are free flowing but as a matter of fact cannot be so classed. Practically all free flowing materials can be weighed, whereas the usual method of measuring non-free flowing materials is either by volume or by packing. Each one of these general classifications has many divisions and, as might be expected, the dividing line between the divisions with some kinds of materials is very finely drawn.

Referring to the free flowing materials, we find the range from very coarse materials that have no tendency to stick or arch down through to the so-called free flowing materials which need some assistance in the form of agitation or pressure to make them flow freely into buckets. Of course the type of machine will depend somewhat upon the character of the material, but in general all of these types of materials can be automatically weighed. Practically all types of automatic weighing machines work on the principle of weighed load shutting off the flow of material into the weighing bucket. This means that there must always be a certain amount of material between the load in the bucket and the cut-off point and the accuracy of weighing is dependent on the uniformity of the flow of this stream of material and the quickness with which the mechanism operates to cut off the flow from the action of the descending bucket.

The problem of handling non-free flowing materials is more complicated as the differences in the character of the materials are more marked than in free flowing materials and the characteristics of the non-free flowing materials cause more difficulty in handling it.

There are two methods of filling non-free flowing materials: first, by packing, and second, by volume filling. In certain cases the material is required to be put into containers with greater density than the normal conditions of the material would permit, and in such instances the material is *packed* into containers. The amount which goes into the container is determined by the density of the material in the containers, and when the required density has been obtained the feeding mechanism is tripped so that the flow of material is stopped.

When the amount of material required in the container is not greater than that which can be held with the material in the normal condition or with a small amount of settling, the method of volume filling is used. This is really a measuring method and when the proper amount has been measured out the mechanism is stopped. One of the great advantages of handling materials by the packing method is that in a material where the consistency is constantly changing the variation in volume will be automatically taken care of because the amount of material is based on the density of the pack rather than on the amount of material in a certain volume. The volume method of filling is sufficiently accurate for materials of uniform consistency.

There are some kinds of material which have some characteristics of free flowing and other characteristics of non-free flowing materials, and in handling these kinds a combination of net weighing with volume filling is employed. It is hard to lay down definite rules for classification of materials because there are so many varying elements entering into the determination.

Therefore it is well when endeavoring to choose a machine suited for the particular work at hand to study the problem thoroughly and to submit it to some manufacturer well known for his accuracy and for the work that he has done in similar fields. That which may have been accomplished, in what appeared to be the same as your particular problem, may be accomplished in the same manner and yet may require entirely different treatment.

WEIGHING, PACKING, FOLDING AND SEALING OF PAPER BAGS

by R. E. Williams

AUTOMATIC EQUIPMENT for the efficient closing of stiff containers, which has been available for many years, made it almost imperative for the large producer of packaged goods to seek some form of stiff container, either can or carton, for volume packaging. Although the cost of these containers was considerably higher than paper bags, the saving in production cost more than equalized the packaging overhead, and in most cases the bag remained

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the packaging unit for only the small producer.

However, the increased demand for merchandizing economies, and an attractive but less expensive container, drew many a production manager's attention to the multi-color lined paper bag. It was at this time that automatic bag closing machines made their appearance, and thus provided for the first time a machine that would, when operated in conjunction with an automatic net weigher, pack, fold, and seal with a strip of gum tape, bags ranging in weight from $^1/_2$ lb. to $1^1/_2$ lb. The steps in packaging are as follows:

The exact weight drops from the automatic net weigher into the bag, which is held in place by one operator, who then places the bag on a traveling belt that passes between two vertical belts into the packer, where the material is firmly packed to assure a solid package, and then delivers the bag into the folding and sealing unit proper. Here the bag is tucked, a triple fold applied to the top of the bag and, as this fold is pressed firmly in place, paper tape is cut, moistened, and pressed firmly on the top and down the two sides. The seal obtained is practically air-tight, and is the strongest part of the finished package. The dust-proof seal effected is square at the top, and thus permits easy and convenient packing into shipping containers. Standard bags as produced by bag manufacturing companies can be used, and the uniformity with which the bags are automatically packed, folded, and sealed assures a continuous production of packages, pleasing to the eye, highly practical and, at the same time, conveying an air of stability formerly associated only with containers other than bags. With one operator to feed the bags to the weigher and another to place the filled bags in the shipping containers, two operators can easily and continuously turn out up to thirty packages per minute.

Less than $^1/_2$ hp. is required for operating the entire bag packaging unit. Flexibility of operation is another valuable feature, and permits the closing of bags ranging in weight from 8-oz. up to $2^1/_2$ lbs. The machine is so constructed that the adjustment from one size bag to another can be made in only a few minutes' time. The space required is approximately 12 ft. in length by 20 in. in width.

BOTTLE FILLING EQUIPMENT

by E. E. Finch

TWENTY-FIVE years is not a very long time when one looks back upon it, not nearly as long a period as to look forward that length of time. In 1908, writers of quips and jokes used to predict amusing, unusual and often what seemed to be the impossible things that would happen to us and that we would do in the year 1933. Their most vivid imagining and what then seemed to be the most grotesque sort of a picture failed to truly visualize all the things that have come to pass in the last twenty-five years. Our modern automobiles, our airplanes, radios, modern skyscrapers, and to be a bit more prosaic, our modern methods of manufacturing and merchandising, far outstrip the most vivid imaginings of twenty-five years ago.

We do not believe it necessary to discuss in detail bottling equipments that were popular twenty-five years ago or twenty years ago. It is true that there are certain methods, truly hand-operated methods that were popular in those bygone days that are still in use or operation. One of the interesting and startling conditions exists today in the thoughts of those who are contemplating the re-entering of the whiskey business along the line of bottling. Early in the fall of '33, the distiller who was contemplating re-entering the whiskey business and bottling of that product, pictured to himself an equipment similar to what he used in 1910, or '14, or '16. He visualized generally a production of 200 or 300 cases a day in a bottling plant. He anticipated the use of corks in bottles and the same method of cleaning and filling and labeling the bottles as he had always done in days gone by. One important thing that he failed to consider was that the use of corks in whiskey bottles was a thing of the past. The patented caps and the standard modern screw caps take the place of straight corks and shell corks that we used to know in the old days. The distiller who had thought that he would produce 300 to 500 cases a day, found that it was advisable to consider a much larger production unit, or units, and it is not unusual now for a distilling plant to consider a production of 10,000 to 20,000 cases per day.

All of this means that even in this modern day, we are presented with new problems to solve, in an effort to use those machines that have proved themselves to be standard and practical in the past few years and make them adaptable to these new containers or operating conditions. A few years ago it was reasonable to assume that in the filling of liquids into bottles it was entirely practical to consider that there were three methods of accomplishing this result; namely, the syphon method of filling, the pressure method of filling, and the vacuum method of filling.

We believe that the syphon method of filling is strictly a thing of the past and we do not think that anything is gained by discussing this method in the present day and age of high-speed production require-

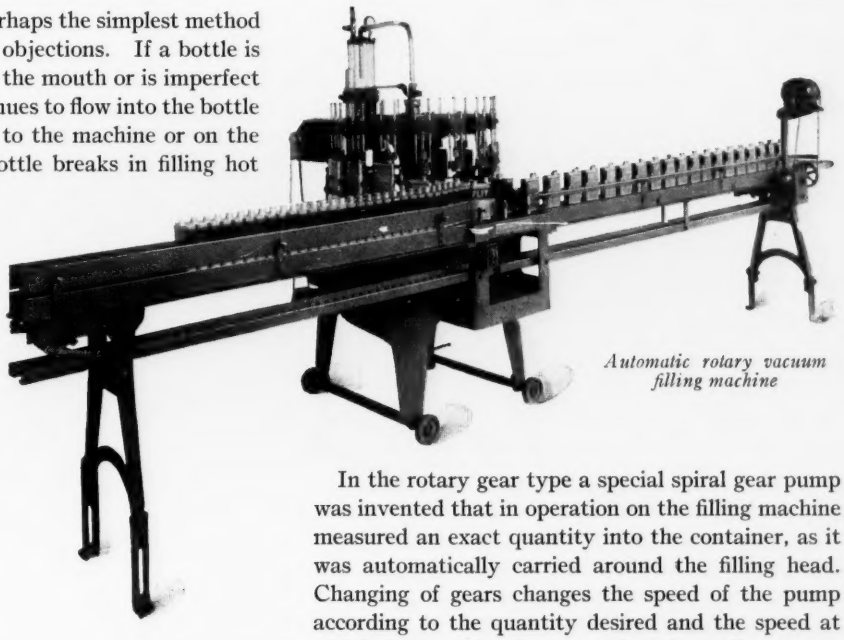
ments. The pressure method, and particularly the vacuum method, we believe, can and should be discussed and we will endeavor to briefly cover various points in relation to these types of machines.

DIRECT PRESSURE METHOD

The direct pressure is perhaps the simplest method of filling but it has certain objections. If a bottle is chipped or cracked around the mouth or is imperfect in any way the liquid continues to flow into the bottle and through the bottle on to the machine or on the floor. If a piece of the bottle breaks in filling hot products, as sometimes occurs, the liquid flows through that aperture until the filling head is raised.

There were also developed some automatic rotary machines of the direct pressure type that were highly efficient and quite wonderful when considered from a viewpoint of the day. Some of these machines are still in operation.

Along about 1914, with the increase in the merchandising of small packages, there arose a necessity for a filling machine to fill not only bottles but also glass jars and tin cans of various types. There were products of a viscous nature that could not be handled by a syphon method or even by the direct pressure method. As the demand increased for a machine to handle viscous products such as jams, jellies, preserves, mustard, syrups, ointments, paints, varnishes, etc., there were developed measuring types of machines and these were of two general types and known as the rotary gear type and the piston type.

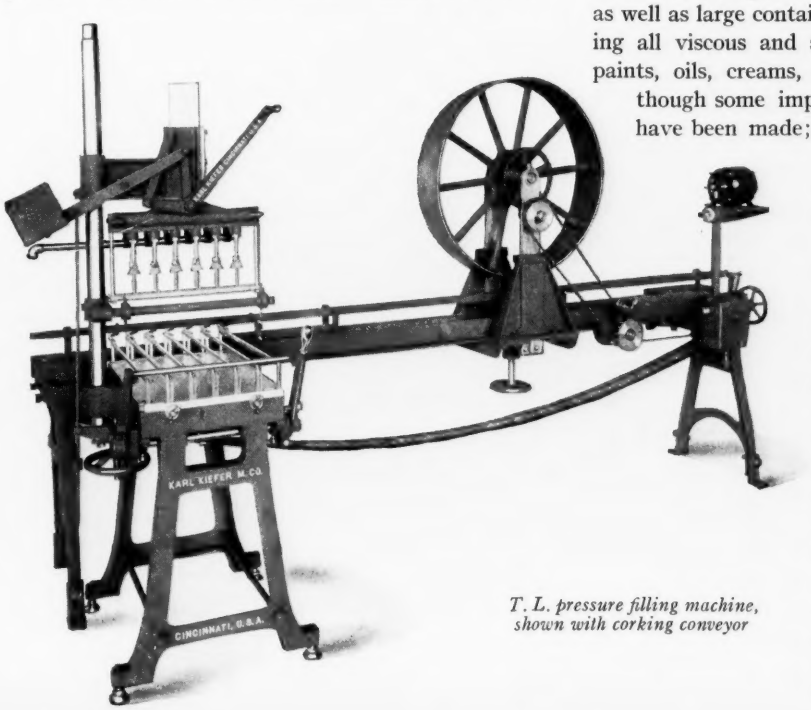


Automatic rotary vacuum filling machine

In the rotary gear type a special spiral gear pump was invented that in operation on the filling machine measured an exact quantity into the container, as it was automatically carried around the filling head. Changing of gears changes the speed of the pump according to the quantity desired and the speed at which the machine is operated under ordinary conditions.

The machine is also equipped with a friction drive for the finer accuracies desired for measuring an exact quantity into a container, and has been developed to a point where it measures to the fraction of an ounce, giving the accuracy desired in filling small as well as large containers. It is today used for filling all viscous and semi-viscous products such as paints, oils, creams, ointments, mustard, etc., although some improvements and developments have been made; and where originally a speed of 40 a minute was considered ample, new machines now operate at a speed of from 90 to 140 containers per minute.

There are two styles of piston type machines. In the first the product flows direct from supply tank to the cylinders of the machine and in the other the product flows into a hopper located directly above the cylinders. In both types the piston is set to deliver a predetermined quantity at each stroke. As the piston is drawn back in the cylinder, the liquid follows or is sucked into the cylinder and then



T. L. pressure filling machine, shown with corking conveyor

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on the reverse stroke is forced out of the cylinder through filling nozzles into the container. These machines are made in various sizes with production possibilities of from 25 to 100 containers per minute.

While the increase in the distribution of liquid products in bottles was considerable from 1910 to 1918, the tremendous development really began about 1918, and with the exception of the slight slump in 1921 and part of 1922, has continued to grow to a surprising degree. Where a factory had a production of one hundred gross of bottles a day in 1918, which was considered something out of the ordinary, today hundreds of factories do as much and



18-Stem, hand rotary filling machine

a great number of factories each produce several hundred gross per operating day.

Naturally with this tremendous increase in bottled goods of all sorts there developed an increase in sizes and types of bottles. Peculiarly shaped bottles, very small bottles were, and to some extent still are, difficult to manufacture with a guarantee to perfection. Attempting to fill such bottles at a high rate of speed and a percentage imperfect meant tremendous loss in production as well as in the product itself and the extra labor entailed.

The old type of pressure machine would not do and thus there came into existence the vacuum type of filling machine. Originally this was a simple device, a hand arrangement that filled one, possibly two, bottles at a time.

It was at once obvious that in the filling of small bottles such as those for perfumes, extracts, and similar products where the percentage of bottle imperfection was very large, the vacuum method of filling eliminated entirely the loss of liquid because it would not fill an imperfect bottle. Machinery manufacturers were not slow to see these advantages and various types of machines have been developed.

Today there is still the simple single stem and double stem hand vacuum filler, the small semi-automatic straight line machines, the tray type machines, the large automatic rotary type machines and the automatic straight line machines.

In the direct pressure machine the supply tank was above the filling machine and the product flowed by gravity from this tank through the head and thence through the stems of the machines into the bottles. As the liquid flowed in, it forced the air out ahead of the liquid.

In the vacuum machine the product comes from the manufacturer's supply tank into a small supply tank on the filling machine, located below the filling head or stems. The vacuum produced in the bottle first draws the air out and thus the vacuum established in the bottle draws the liquid from the small supply tank.

OPERATION OF VACUUM MACHINE

The vacuum machine is extremely simple in its method of operation. The stems are connected by such methods as the various manufacturers of these machines may employ to the small supply tank on the machine. The stem is really a multiple stem, having two openings. Located on the stem is a rubber seal which may be adjustable, and the lower end of the stem enters the bottle to the height at which it is to be filled. At that point the mouth of the bottle is resting firmly against the rubber seal on the stem. Immediately the mouth of the bottle comes in firm contact with the rubber seal, the vacuum, which is produced by either individual vacuum pumps or a general vacuum system in the plant, draws the air out of the bottles through the smaller of the two openings in the stems. When that occurs the liquid naturally follows through the other opening or filling line, fills the bottle up to the air outlet and if the bottle remains in contact with the seal the excess liquid overflows through the air or vacuum line into a vacuum bowl and by means of an ingenious device is automatically returned to the supply tank on the machine. If all connections are tight, if both the air line and the filling line are clean and free, then all perfect bottles will be filled.

The methods of handling the bottles to and from the machines are varied. On some straight line machines the bottles are brought in under the filling stems, the head of the machines is lowered, stems entering the bottles, and the rubber seals on the stems are firmly compressed against the mouths of the bottles. In some other types of machines the bottles are raised, the filling head remaining stationary.

In automatic rotary type machines, bottles are fed automatically from a conveyor into the filling machine. Each bottle is handled on a separate lifting tray, and after being filled is automatically discharged from the machine onto a conveyor.

STRAIGHT LINE MACHINES

On straight line automatic machines the bottles are carried forward on a conveyor and automatically transferred from the conveyor to a platform which raises the bottles up to the filling head. After being filled the bottles are again automatically placed back on the conveyor. Only partial vacuum is necessary to fill the bottles. In handling heavy products at high speed, vacuum up to 18 in. to 20 in. may be used, but the average liquid filled in the average bottle requires only from 3 in. to 7 in. of vacuum. To give a more specific illustration, on some of the larger automatic rotary machines filling a product such as catsup at 100 pint bottles per minute requires not more than 8 in. of vacuum.

The advantages of the vacuum method of filling are so varied and so great that this type of machine has almost entirely superseded the older types such as syphon and pressure machines.

The accurate measure type, in which the liquid is first measured in measuring cups and then dispensed into the container, is especially well adapted to the filling of products that are of an expensive nature such as essential oils, etc., where an accuracy of quantity is more desirable than a uniform filling height in all of the containers filled. The cup measuring type can be graduated down to a very close margin, as differentiated from the piston type which cannot be classed as an absolute accurate measure for it will fluctuate slightly.

There is another type of accurate measure filler and that is the electrically operated cut-off type or weighing type which is used to some extent in the oil refineries.

The machinery manufacturers have developed various machines that will suit the requirements of almost every bottler. The machines range from the smallest or hand-operated units, with a capacity of 10 to 20 bottles per minute, up to 30 to 50 a minute with a semi-automatic, and from 75 to 150 with full automatic machines.

COLLAPSIBLE TUBE FILLING

by H. G. Addison

THE constantly increasing use of collapsible tubes is due in no small way to the ease of operation and flexibility, as to changes in size, of the modern tube filling equipment. A complete outfit for filling, closing and clipping collapsible tubes may be purchased for as little as $130 and this will perform these operations at 15 to 20 tubes per minute. The small user of collapsible tubes is thus almost as efficient, right from the start, as the larger user. A complete range of equipment of various sizes is available without the necessity of building any special equipment. For less than a thousand dollars a complete outfit to turn out 35 tubes per minute can be had. As production warrants, this output can be increased to sixty or eighty tubes per minute. A new completely automatic filling, closing and clipping machine operates at speeds up to 140 tubes per minute with one operator and is designed to feed directly into automatic cartoning machines.

Considering the work they perform, modern tube filling, closing and clipping machines are remarkably simple and can be maintained in proper operating condition by careful employees. No unusual mechanical skill is required in making the various adjustments for different sizes of tubes, and if those considering the use of this equipment for the first time will put their problem up to a reputable maker of this class of machinery, they can rest assured that the machines will perform to their satisfaction.

The selection of tube filling equipment depends on three important factors: first, the consistency of the material at the time of filling; secondly, the range of sizes of tubes; third, the daily production which is to be anticipated by the plant.

If possible, materials such as cold creams, ointments, etc., should be filled in a warm fluid condition, as much simpler filling units can be employed. At the same time, it is unwise to fill tubes with any material in a warm state, should the material shrink considerably on cooling. This shrinkage will buckle the wall of the tube, giving it a partially empty appearance, which is undesirable to the consumer.

It is also common for a tube user to attempt to overfill a tube in order to give a "fat" appearance and impress the purchaser with the quantity of material he is getting. This over-filling of tubes is efficiency's greatest enemy as it is necessary to stop frequently and wipe off the jaws of the closing devices. In addition to this, these tubes are more liable to leak after being on the dealers' shelves under unusual climatic conditions. A properly filled tube has sufficient flat on the closed end to allow material to expand without seepage through the closed and clipped ends. An "over-filled" tube will usually have a layer of the material inside the fold of the tube, and if the material is even mildly corrosive, such as a shaving cream, the tube decoration

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and the clip, if used, will soon be spoiled in appearance. A recent development which permits tubes to be sealed hermetically eliminates this trouble entirely. The hermetic type of closure requires a tube precoated with a special compound by the tube manufacturer. When the tube is closed, the strength of the closure and its resistance to seepage are equal to those of the wall of the tube itself. No clip is used and less tube length is required than for other types of clipless closures.

Two methods of sealing the tubes after filling can be used. These are the use of a double fold, as in the past, or the use of "clipless closures," of which there are several types available. These closures permit the saving of cost of clips, maintenance and, in the case of semi-automatic machines, an extra operator.

The closing of tubes using clips is done as follows: The end of the tube is flattened, a portion of it turned over, and pressed flat. This operation is then repeated, all automatically, of course. For material such as lighter fluid, rubber cement, rubber solvents, etc., containing highly volatile material, it is sometimes advisable to make the first portion turned over wider than usual, with the second fold the regular width. This gives eight thicknesses of material rather than the six thicknesses obtained with the regular fold, and in reality makes the seal fifty per cent more secure.

After the closing operation, the clipping is performed. This guards the end of the tube and prevents accidental opening of the folded end. Tube clips are cheap and are applied automatically by most users. At the time the clip is applied, a control number can be stamped on one side of the clip if desired.

One of the clipless closure types referred to above consists of making the two usual double folds and then turning the corners back obliquely. Another type is accomplished by making the two usual double folds with the second fold wider than is customary and then folding this double fold in a reversed direction after which the corrugations are applied to give added strength and security to the tube contents or by making an integral clip from the tube metal itself to accomplish the same results.

A decorative band to match the tube decoration can be used on the end of the tube to enhance its appearance. Control numbers or dating codes can be stamped on the tubes using the clipless closure. Ejection of the tubes from the machine after the three operations of filling, closing, and clipping are performed, can be automatic or manual as desired.

A recent development in collapsible tube filling is the application of the electric-eye as utilized to obtain proper registration, during the filling and closing operations, of trade mark or other decoration on the face of the tube. Formerly done by operators, it is now possible to obtain such placement automatically and at higher speeds.

LABELING MACHINES

LABELING MACHINES have been developed along with the filling, screw-capping, cartoning and wrapping machine to such an extent that they are of equal importance to the manufacturers for many reasons. Nor is their sphere limited only to the food, drug, chemical, toilet preparation and bottling industries, but they find their way into the cigarette and cigar factory, hardware, hosiery and almost every line where labels are used. Mop and broom handles are now labeled by machines, likewise insecticide sprayers and wetstones.

Some of the advantages of the modern labeling machine are the following: It produces a large output, occupies a comparatively small floor space, labels neatly, accurately and uniformly.

Labeling machines may be classified, first, as semi-automatic and automatic and the latter as rotary, straightaway and can labelers.

The semi-automatic labelers were designed primarily for the labeling of beer and similar bottles, but their use today covers almost the entire labeling field. They are in greater demand today than ever because even the small manufacturer believes in machinery for its economy and superior quality of the work performed. The semi-automatic labeler, however, requires an operator to feed each package or container to be labeled. The article is placed into the machines by hand, the label or labels are applied and then the article removed from the machine by the operator. The speed of these machines being limited to 25 to 30 articles per minute or less, depending upon the character of the article and the energy of the operator, led to the development of the fully automatic labeling machine. Nevertheless, the semi-automatic labeler will always be popular and profitable for small production and where short runs of many different sizes and shapes of packages must be labeled.

The automatic rotary labeling machine, which is an outgrowth of the semi-automatic, gums the label and applies it in a similar manner, but it has incorporated conveyors for feeding the articles through the machine without handling them by the operator and therefore is much faster than the semi-automatic labeler, attaining a speed of 85 to 90 per minute. A recent important improvement in this type of labeler is the attachment for applying tinfoil around the

neck of ginger ale and like bottles. They are furnished by several concerns and are particularly adapted to the labeling of round bottles and jars used in the bottling and food industries as well as some chemical and drug products. They apply on bottles, the body label only, the body and neck label or the body and neck labels and the tinfoil.

The straightaway type of automatic labeling machines, which are of more recent design than those above mentioned, go further into the general field of labeling because they can be adapted to sealing or labeling cartons, boxes, wrapped cakes of soap as well as the food, drug and bottlers' products. They have many advantages in the way of speed, accurate registration, cleanliness, adjustability and accessibility. They are built in two standard types known as single and double labelers, both of which types are also furnished in the duplex models.

The single labeler applies one label on one side of the package or container and the double labeler two labels on opposite sides simultaneously.

The single duplex labeler applies one label on each of two packages or containers at the same time and the double duplex four labels on both sides of two articles simultaneously. In other words, if these machines are running sixty revolutions per minute, the single will apply 60, the double 120, the single duplex 120 and the double duplex 240 labels per minute although the machine is running comparatively slowly.

The duplex labeler is a recent development born of the insatiable American demand for speed and production. In order to keep pace with the filling, capping, cartoning and wrapping machines, all of which are often hooked up with an automatic labeler in a straight-line production unit, it was necessary to get greater output from the labeler without applying the glued label in less time. It requires time to apply glue to the label and more time to make the label adhere properly to the container, therefore the slow running duplex labeler can do a better job than the single machine speeded up which seemingly throws the label at the package without sufficient time to apply it properly.

No less important is the perfection of another automatic labeling machine for round bottles where the name of the product appears in raised lettering on the bottle. In such instances it is an absolute necessity to "spot" the label in a determined position in order that every package will be labeled and look alike with respect to the lettering in the glass. Previously this was done by hand or on semi-automatic machines where the best was a good guess at the proper spot for the label. Some manufacturers have discarded their trade mark on the bottle because of the inconvenience in placing the label accurately and automatically. Examples of this spot labeling are to be found in the "Vaseline" and "Listerine" bottles. Such bottles can now be adapted where the name of the product is in the glass to tell what it is after the label is destroyed and with the knowledge that they can be properly labeled by fully automatic machines.

Regarding the quality of the labeling done by hand and by machine, manufacturers may say that no machine can do this work well enough. However, such objections can be answered by referring to the labeling of cigar boxes which are perhaps some of the best labeled packages in our show cases. The labels are beautiful, of many colors, embossed and cut neatly and accurately. Until recently they were applied by hand, which almost ruined their good appearance and lustre. Because paste was used instead of glue it soaked the label and destroyed the colors. Then it was placed by hand and wiped on with a rag which killed the embossing and smeared the colors. Today the automatic machine applies thin glue quickly, applies the label at once and places it even more accurately than the hand. The result is that the moisture in the glue does not have time to penetrate the label, therefore the embossing and colors remain just as the printer made them.

Incidentally, it might be said here that 95 per cent of a cigar box can be made on automatic machines which insure their uniform shape and size just as the machine-made bottle is uniform, which requisite is most important for machine handling. Unless uniformity in size and shape is obtained, efficient labeling is impossible.

Can labeler. Where full length labels which overlap are applied to round containers, the universally known automatic round package labeler is in general use, one type of machine being for hermetically sealed, friction lid and screw top containers, while another is for slip cover containers. One or the other types of machine are employed in the food packing and kindred industries, including paints and specialties and the other in most of the coffee plants as well as several salt factories. Cans with ears such as large packages of paint are also automatically labeled through utilizing a full length label which overlaps and is died out to encircle the ears, thus supplanting the front and back label formerly used. Glass containers have also come within the scope of the automatic round container labeler, nationally known products like Sal Hepatica being labeled on this type of machine as well as glass containers of insecticides, toilet preparations, fruit juices, etc.

This type of machine can operate at a speed of from 150 to 250 or more packages per minute because of the fact that the packages are rolled through and a comparatively simple and speedy form of mechanism can thus be utilized, hence the automatic round package type of labeler is the speediest mechanical medium available and fulfills all the necessary requirements.

Modern factory practice has demonstrated the importance of machine production and that manufacturer is wise who leaves no stone unturned to place all of his manufacturing on a machine basis. The use of machinery in the finishing or packing depart-

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ment is as important as in the actual processes of manufacture and the manufacturer who extends his machine methods to these departments is bound to profit more than the one who does not take advantage of the equipment offered.

In general, a labeling machine can be equipped with attachments to handle a manufacturer's package without alteration but occasionally a minor change in container or label will simplify the work and enable the labeling to be done with a minimum of care. Where new packages or labels are designed it is well for the manufacturer to bear in mind a few simple facts that will enable him to favor the labeling machine and to operate under the most ideal conditions. The best labels are made from thin paper, soft and comparatively light in weight so that they will conform easily to the shape of the container. The surface of the container should be such that the label will naturally follow the contour without wrinkling. A spherical surface is impossible, for the label must curve in two directions and will not lie smooth. Where hexagonal, octagonal or similar containers are used the size of the label should be such that the edges of the label should extend well over the corners of the container and on the flat sides to prevent the edges of the label from becoming loose after the label had been wiped on and the container removed from the machine. The observance of these rules will make for efficient practice in the labeling of packages.

AUTOMATIC PRINTING MACHINERY

by A. A. Morse

THE development and improvement of automatic printing machinery make it possible for the manufacturer to operate his own printing plant under conditions which effect savings on his requirements for printed wraps, labels, cartons, tags, etc.

The design of automatic printing machines conforms with the principle of continuous straight line production, so necessary for manufacturing economy today. Paper travels through the machine in as straight a line as possible, during which it receives successively the various colors making up the completed printed design. After being printed it goes through various supplementary operations such as cutting, scoring, folding, perforating, numbering, etc.

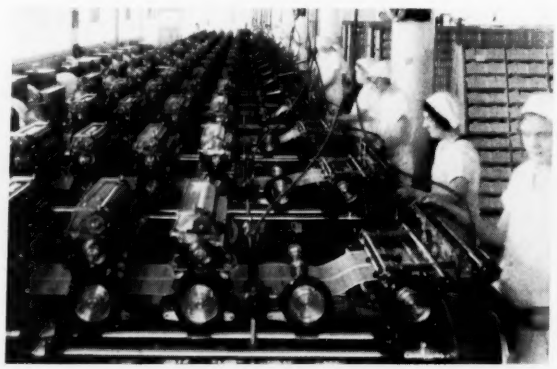
Automatic printing machinery falls in two classifications:

(a) Machines in which the paper travels forward in a single continuous roll, such as the Chambon automatic printing machine and the New Era press.

(b) Machines in which the paper is fed through in sheet form on multi-color presses such as the Claybourn press.

Chambon Printing Machine. With this type of machine, paper is furnished in rolls and travels through the press in a straight line. Printing operations are successively performed by cylindrical, chrome-plated bronze or steel plates good for as many as 100,000,000 impressions. All mechanical motions are rotary to avoid vibration and noise. Specially designed ink fountains supply the ink. Any number of colors may be used. Both sides of the paper can be printed at the same time. Register is perfect. The quality of the work is predetermined and built into the machine, eliminating the usual element of personal skill.

These machines can be adapted for letterpress printing, dry offset, or rotogravure. Combinations of these can be effected. The same machine can be used for scoring, creasing, embossing, perforating,



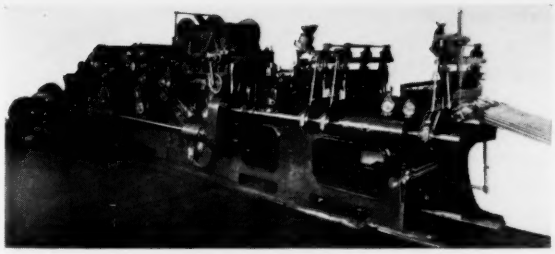
Chambon multi-color presses at Beech-Nut Packing Co. plant

slitting and rewinding, sheeting, dieing out to shape, and other supplementary operations.

They may be operated 85 to 95 per cent of the working day. Compact in size, they require but a fraction of the space required for ordinary equipment. While designed primarily for a particular job they possess a flexibility feature which permits changing over to other jobs at slight expense.

New Era Press. In this press the paper also travels forward from the roll through the press, but with an intermittent motion. As the paper comes to rest from time to time under each of the printing units, it receives successively the different colors from these units while it is at rest. After being printed it passes through the various special units such as the perforating, cutting and scoring, punching, numbering, tag-making, metal eyeletting, etc.

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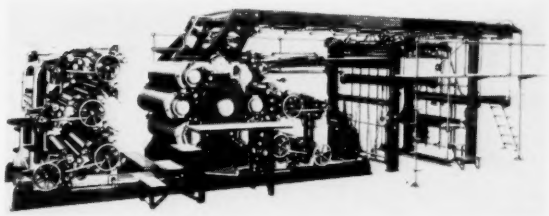


New Era printing press

Each of these different units operates while the paper is at rest. After these various operations are performed, the web continues to travel through the slitting unit where it can be slit into strips if desired and then to the cut-off or rewind, where it is either rewound into rolls or cut off into sheets.

The machine is not intended for ordinary job work but is intended particularly for specialties. It is used by a great many specialty printers for printing roll tickets, railway tickets, strip tickets, etc., by the gummed label manufacturers for printing gummed labels and tape, in strips, roll or sheets; by the tag manufacturers for printing and making tags, and by carton makers for printing, scoring and creasing as well as cutting small cartons.

Claybourn Press. A multi-color sheet-fed rotary press manufactured in from one to five colors, and in two sizes. These presses can be started quickly and operated at high speeds. Perfected printing plates result in twice as many impressions per plate. While this type of press requires more floor space than the two types mentioned above, it effects considerable economies due to the high speeds at which it can be operated and the large size of the sheet which it will take. The manufacturers of this press also make a five-color high-speed web label press which takes the paper in rolls, prints it, and delivers it in sheet form.



Claybourn multi-color rotary press

CORRUGATED AND SOLID FIBRE CONTAINERS

by J. D. Malcolmson

A FIBRE shipping container is a tough, efficient and economical outer package built to withstand the wear and tear of freight, express and parcel post shipment. It is used for shipping all manner of commodities up to a weight limit of ninety pounds. There are two types of these boxes, both equally popular—the laminated walled "solid fibre" box and the cellular "double faced corrugated" box.

The fibre container is an evolution, partly of the ordinary paper carton, and partly of the familiar corrugated straw sheet, used, among other things, as a wrapper for bottles and incandescent lamps. Corrugated paper itself has been in use for some fifty years as an interior packing and wrapping material. More recently, one face and then two were glued to this corrugated sheet to make a rigid board; but it was not until 1903 that experimental freight shipments were made in boxes built from this combined material. In 1906 the general use of fibre containers for freight shipments was authorized by the railroads, and this marked the real start of the industry.

Economically considered, the fibre box is an important factor in forest conservation, inasmuch as only about one-sixth of its raw material is new wood pulp, the balance being largely reworked waste paper. This waste paper, moreover, usually contains a fair proportion of old fibre boxes which have outlived their period of usefulness and have found their way back to the paper mill. These savings are in addition to the billions of feet of lumber for wooden boxes that are replaced.

The average fibre box weighs only from two to three pounds, which means a reduction of shipping weight anywhere from 10 to 50 per cent when compared with the same size wooden boxes. It is shipped flat when empty, and in this form occupies about one-tenth of the space it will contain when set up.

The fibre container affords a satisfactory means for shipping fragile articles, as well as heavy commodities of relatively small size. Liquids in glass, for instance, are moved in these boxes with a minimum of breakage. The bottles are usually packed in cells formed by partitions of corrugated fibreboard. Another method of packing which is in greater demand is the "unit carton" system. Articles such as electric irons, lamp fixtures, etc., are placed in an individual carton, which also contains the necessary accessories. A certain number of these cartons, say two dozen, are then shipped in a container, so designed that the contents exactly fill the box. The advantages of this system are that breakage is practically eliminated, the goods are received by the retailer in an attractive condition for displaying on his shelves, and the customer receives the article with its accessory fittings in a convenient

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and expeditious manner. Many of the larger box makers maintain elaborate designing departments, which are devoted to the devising of new and better methods of packing.

The advantages which are claimed for the use of fibre containers are as follows:

First Cost—Being largely made from waste products in large quantities, their first cost is relatively low as compared with other types.

Weight—Tare weights are relatively low, resulting in freight savings on shipments as well as on incoming supplies of boxes.

Convenience—The absence of nails and splinters prevents injury to hands or clothing in packing and invites freight handlers to lay aside their hooks. Its relatively small size, which is controlled by railroad requirements, makes for easy handling in shipment and storage. It is often used as a shelf package and as a unit package for delivery to the ultimate consumer without opening and re-packing.

Storage—Fibre containers are delivered flat and are stored in a minimum of space. Approximately ten of these flat cases can be stored in the space occupied by one of them when set up.

Concealed Theft is minimized, as the case, when properly sealed, must be practically destroyed to open it.

Sealing is very economical, due to the development of automatic sealing machines which are described elsewhere in this volume.

Advertising—Being a paper product, these cases are susceptible to high grade printing in one or more colors and form a traveling billboard as long as they are in existence.

Sanitary Features—These cases are used new and seldom re-used. Paper linings are not necessary and dust and dirt find no access.

Accuracy—Shrinkage, warping and swelling are unknown.

Conservation—Timberlands are conserved as only a small proportion of the box consists of new wood pulp. The balance of the material includes discarded boxes re-worked into new paper.

Stacking—These boxes, due to the combination of light weight and rigid walls, can be stacked to the roof of most warehouses.

NOMENCLATURE

Much time and correspondence is wasted through different ideas of terminology. This is in part due to the rapid growth of this industry which has not had time to evolve a standardized vocabulary.

The following list is by no means complete but it does contain most of the terms which are subject to misinterpretation:

Fibre Containers—The general term which includes both corrugated and solid fibre cases. The words "fibre" or "fibre boxes" are often used to designate solid fibre containers, but this is open to misconstruction.

Corrugated Fibre Containers, or usually simply "corrugated cases," generally indicates boxes made of single strength, double faced corrugated board.

Corrugated Board is a general term and may mean any of the grades named below.

Unlined Corrugated is the corrugated paper alone with no "liners" or "facings." It is usually made of 0.009 in. straw but sometimes is 0.009 in. chip and unless otherwise specified, is the usual or large corrugation, $^3/_{16}$ in. in height. It is used as wrapping material for lamp chimneys, etc., and has the disadvantage of stretching and thus losing the cushion value of the corrugations. It usually comes in rolls.

Single Faced Board has one liner which may be of straw, chip or jute and usually either 0.009 in., 0.012 in. or 0.016 in. thick. It is used for inner packing and wrapping and is usually sold in rolls 36 in. wide, 250 ft. long, weighing from 60 to 75 lbs.

Double Faced Board, or double lined corrugated, is made with two liners of straw, chip, jute or kraft and is described by the railroads as "single strength." It may be test or non-test board and cannot be rolled.

Double Strength Board is often spoken of as "double double" and "double walled," but the term "double strength" is preferable, as this is the designation used by the railroads. It is a combination of double face and single face, having three liners and two corrugations and is from $^3/_8$ in. to $^1/_4$ in. thick.

Straw Paper or "Strawboard," used for the corrugations, is 100 per cent wheat straw, although rye, oat and rice straws are occasionally used. Strawboard is sometimes imported from Europe, usually from Holland. It is generally made 0.009 in. thick for corrugating, although 0.012 in. or heavier is sometimes used for this purpose. Chestnut waste, sulfate, sulfite and pine wood fibreboard is also permitted by the railroads for corrugations, but the production of these materials is relatively small.

Chip, or Chip Board, is made from mixed waste papers and is usually 0.009 in., 0.012 in. or 0.016 in. thick. Corrugated board with chip liners is usually used for interior packing.

News, or News Board, is made of newspapers and is sometimes used in place of chip, though more expensive. The other grades of boxboard do not enter, to any great extent, in the making of shipping containers.

Liners are the facings of single face, double face or double strength corrugated board. They may be 0.009 in., 0.012 in. or 0.016 in. chip or 0.016 in., 0.018 in., 0.023 in. or 0.030 in. jute or kraft. Solid fibre liners are usually 0.016 in. jute or kraft. "Liner" is also used to describe the interior packing sheet which lines the four sides of a case and which is usually made of double faced chip or straw corrugated board. This liner is usually made in one piece with three vertical creases but unjoined.

Jute is really a misnomer, as jute is no longer used in this industry. A "jute" liner is a mixture of new kraft or sulphate fibres and high grade mixed papers.

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Filled Kraft Liners—These are kraft liners with a small proportion of waste paper or groundwood added.

All-Kraft Liners—These contain no mixed papers but are usually made entirely of sulphate. They are among the new developments that are to be found in the industry.

Solid Fibre is a laminated board built by gluing several piles of board together with silicate of soda and is often referred to as "fibre" or "fibreboard." (See *Fibre Containers.*) The two outer plies are made of jute or kraft. Solid fibre is usually made in 0.060 in., 0.080 in., and 0.100 in. thicknesses as called for in the Classification, but some 0.090 in. and 0.120 in. board is occasionally used for shipping containers.

Single-Lined Solid Fibre—This is not often used for shipping containers but is applicable where only a single bender is required and permitted.

Test and Non-Test Board—In this industry this usually applies to board that does or does not comply with the railroad requirements regarding bursting strength.

Express Stock—The correct name of this corrugated board is *jute and chip* which describes its construction. At one time this was acceptable for express shipments. The express rules are now essentially the same as the freight rules except that for most items of less than 35 lbs., jute and chip may still be used.

Mullen or Cady Test—These two instruments register the bursting strength of a board, presumably in terms of pounds per square inch. Actually the results are not exactly in these proportions and for this reason many people refer to the figures as Mullen "points" or "units." Both of these instruments are official as shown in Rule 41.

Webb Tester—This instrument overcomes many of the objections to the Mullen and Cady test by testing the liners of double face corrugated board separately, but it is not recognized as official by the railroads.

Rule 41 is that part of the Official Classification which itemizes the specifications for corrugated and fibre shipping containers when used for freight shipments. *Rule* 18—This does the same for express shipments and is a part of the Official Express Classification.

The Bureau of Explosives, 30 Vesey Street, New York City, issues a handbook containing additional express and freight container specifications for dangerous articles.

Food Administration Specifications—These are the same as the so-called *National Canners Association Specification* and specify higher test corrugated and solid fibre cases for canned goods than are required by the railroads. They are therefore regarded as being unofficial.

Certificate of Box Maker—This is sometimes known as the "Imprint."

The following list is not complete but covers the most important styles of boxes:

Regular Slotted Carton (RSC)—Most containers, especially for freight shipments, are made in this style because of the economy of using a straight cut blank. All flaps are the same length and the inner flaps do not meet unless the length and width are the same.

Special Slotted Carton—All Flaps Meet—Also called "Center Special Slotted Carton." This is more expensive as inner and outer flaps are of different lengths, necessitating an extra manufacturing operation with a loss of stock.

Full Overlap Slotted Carton—Also known as "Full Flap S. C." The length of the outer flaps is the same as the width of the box. The inner flaps may meet, gap or overlap. This style is usually desirable on a long narrow box and gives added strength to any shaped container.

One-Piece Folder—This has flaps at top only and is used to pack flat material such as advertising cut-outs for shipment by parcel post or express.

There are a great many other styles of corrugated and solid fibre shipping containers which are illustrated and described in a free handbook issued by the Paperboard Industries Association, 608 S. Dearborn St., Chicago, Illinois.

Cracker Caddy—This is a special container. Usually about 10 in. x 10 in. x 11 in., made of a moisture- and greaseproof board combination. It is occasionally referred to as "can" or a "qu."

Silicate of Soda—This is an adhesive sometimes used for sealing containers and also used in the manufacture of corrugated and solid fibre board. Another name is *water glass* and it is generally referred to as simply "silicate."

Point—In this industry a "point" is one thousandth of an inch; 0.060 in. board is spoken of as "sixty point" board.

Height—Depth—These synonymous words indicate the distance between the openings of a box, i.e., from top to bottom. "Height" is preferable as in some industries "depth" means from front to rear. The height of a slotted carton is always the last dimension.

Girth is used in the parcel post specifications and means the distance around the parcel at its thickest part.

Length in these P. O. specifications is the greatest distance in a straight line between two ends.

Nests, or Partitions, are slotted half way so that they interlock. A *Divider* is simply a vertical pad with no slots.

Star Cut Pad—This corrugated pad has radiating die cuts and is used to separate large glass objects, such as bowls and illuminating glassware. It is also known by such descriptive and imaginative terms as "rat trap pad" and "pie cut pad."

Die Cut Work is made on a special press and the initial cost of the die and extra make-ready must be

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allowed for. The ordinary fibre box equipment works in straight lines, at right angles, so that other unusual work must be made on a separate cutting and creasing press.

Crease and Score are used interchangeably but "Crease" is preferable as "Score" may mean a knife cut, as it does in the set-up box industry. Such a cut score is not used in the fibre container industry.

Joint and Seam—The railroads define "joint" as the result of the operation done by the box maker in taping or stitching the fourth corner of the box; and "seam" as the juncture that is closed by tape in the sealing process.

Bales and Bundles—This refers to Section 4 (*b*) of Rule 41 and means that items accepted under this category may be shipped in corrugated or solid fibre containers *without* restrictions as to weight or dimensions.

Printing Plates—Solid fibre is printed from brass plates or electrotypes. Corrugated board is printed from rubber plates which are cast from type or from a wood cut.

"A" Flute Corrugation is approximately $^{3}/_{16}$ in. high, 36 to the foot; *"B" Flute Corrugation* is approximately $^{1}/_{8}$ in. high, 50 to the foot.

RULES AND REGULATIONS GOVERNING THE USE OF FIBRE CONTAINERS IN TRANSPORTATION

It is essential that shippers as well as box makers be familiar with the regulations. They are too voluminous to remember, but one should at least know where to secure the authoritative data. Below is given a summary of the various rules and regulations.

The more or less voluminous regulations covering shipments in corrugated and solid fibre boxes can be grouped as follows:

1—Freight
2—Express
3—Parcel Post
4—Dangerous Articles
5—Export
6—Army and Navy

Many of the details in these rules apply only to the way in which the box must be made, and are not of particular interest to the shipper. Buried in the mass of material, however, are a lot of little jokers that are highly important to him, but it sometimes takes a minute to study to uncover them.

Freight—The "Bible" under this heading is the Consolidated Freight Classification—a formidable volume of 550 closely printed pages. This is issued in two sizes—one about the dimensions of a telephone directory and the "photo-reduction edition" about 5 in. x 7 in. x 1 in. Either size may be obtained for a nominal sum by writing to the Official Classification Committee, 143 Liberty St., New York City, the Southern Classification Committee in Atlanta or the Western Classification Committee in Chicago. The subscription includes the various supplements which are issued from time to time—also in photo-reduced form if desired. One should look over each supplement and make the necessary corrections in the large volume.

The well-known "Rule 41" of the Classification gives all the rules for manufacturing and sealing corrugated and solid fibre containers and the book also lists all commodities, telling how each may be packed. Thus, "In Boxes" means corrugated and solid fibre as well as wooden. "Bales" or "Bundles" means oversize boxes with no weight or dimension limits, provided the case is roped, wired or steel strapped. "Packages" is an undefined term occasionally encountered and is similar to "bales" and "bundles" except that the use of straps is not compulsory; and some items permit the use of fibre "cartons" without dimensions or weight limit. Some shippers like to strap several small fibre containers together to make a single unit. There is no rule against this but each individual box must conform to the requirements of Rule 41. "Wrapped in Fibreboard" is another definition applied chiefly to special forms of packing for furniture.

Prior to 1933, glassware and liquids in glass had to be packed in conformance with detailed and complicated specifications for inner packing. The present classification simply requires "adequate packing to prevent breakage."

Shippers are constantly applying for changes in the rules. Such applications are listed every three months in a published docket and hearings are later held at the three cities mentioned, to pass on these applications. Very conclusive evidence must usually be presented to effect a change, and "shipping history" plays a large part in this evidence.

Express—These regulations are governed by the Official Express Classification. This is a small pamphlet to which supplements are issued from time to time. Only two supplements are in effect at any one time. Rule 18 describes fibre containers and is modeled very closely after the freight Rule 41, the principal difference being that the regular dimension limit is raised from 70 in. to 90 in. and the specifications for packages under 35 lbs. are much less severe than for freight.

Parcel Post—The post office rules are not as definite as those for express and freight. Form No. 3841 recommends the use of corrugated boxes for a number of listed commodities but specifications other than "securely wrapped" are not given. The usual parcel post weight and dimension limits apply. In case of doubt it is always best to submit the complete package to your local postmaster for approval.

Dangerous Articles—These come under the jurisdiction of the Bureau of Explosives, 30 Vesey St., New York City, and include such items as inflammable liquids, "strike anywhere" matches, fireworks, etc. The regulations are covered by a 440-page "Pamphlet No. 9," dated September, 1930, and by numerous later supplements.

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In this classification, an "inflammable liquid" is one with a flash point at or below 80 deg. F. An immense amount of correspondence back and forth would be avoided if shippers of doubtful liquids would always mention the flash point of their products when making inquiries for shipping containers.

Forbidden Articles—A number of articles are forbidden for all of these transportation methods. These include certain explosives, chemicals and products susceptible to spontaneous combustion.

Export—There are no uniform rules for fibre containers for overseas shipments. Each steamship line makes its own rules and the stringency of these depends somewhat on the intensity of competition at the time the rules are made. The Paperboard Industries Association has done much valuable work in keeping these regulations within reasonable bounds and hopes eventually to help standardize them.

Army and Navy—During the War, the U. S. Army adopted certain specifications for fibre containers to be used in making shipments, particularly of canned goods, to training camps. This was done under the auspices of the Food Administration. At present the Navy has in effect Bulletin No. 65 C 12, effective February 1, 1926, and revised September 1, 1926. This is modeled after Rule 41 and a copy can be secured from the Supply Officer of any of the navy yards.

Conclusion—This set of regulations makes a formidable array but a great deal has already been accomplished in the direction of uniformity. It is to be hoped that this standardization will be kept in mind by the powers that be, when they make future changes or additions.

PATENTED TYPES OF FIBRE CONTAINERS

Almost an endless number of unusual boxes have been patented, advertised and finally forgotten. Most of these are either impracticable or too expensive for the purpose intended. Those in the limelight at the present time are:

The Reinforced Score Box—A corrugated container with a strip of tape glued over the score-line, either on the inner liner or inside the board. Three different companies have patents on variations of this idea.

The Reinforced Tape Joint, in which the ends of the tape on the manufacturer's joint is split and tucked under at each end.

Burlap-Covered Box—This is a corrugated box with an outer covering of burlap cemented on with asphalt. This box, because of its strength and moistureproof qualities, is suitable for export use.

Recessed End Box—The ends of this solid fibre box, being recessed, are strengthened by the resulting stitched rim.

Bliss Box—This type of fibre container, designed by the H. R. Bliss Company of Niagara Falls, N. Y., consists of a three-piece box made of solid fibre or corrugated board. The blanks are joined by means of flanges stitched in place, which reinforces the corners and all vertical seams. It is claimed that the corners and vital seams are the vital parts of the fibre box and that when reinforced by stitched flanges, the resulting box is much better fitted to withstand the shocks and strain of handling and of transit. The box is also more rigid and can be stacked higher without bulging.

SEALING SHIPPING CONTAINERS

by W. D. Kimball

VAST improvement has been made in the methods and equipment employed in the packing and sealing of solid fibre and corrugated paper shipping cases in the last decade. During that time the methods employed in sealing cases have passed through several distinct phases.

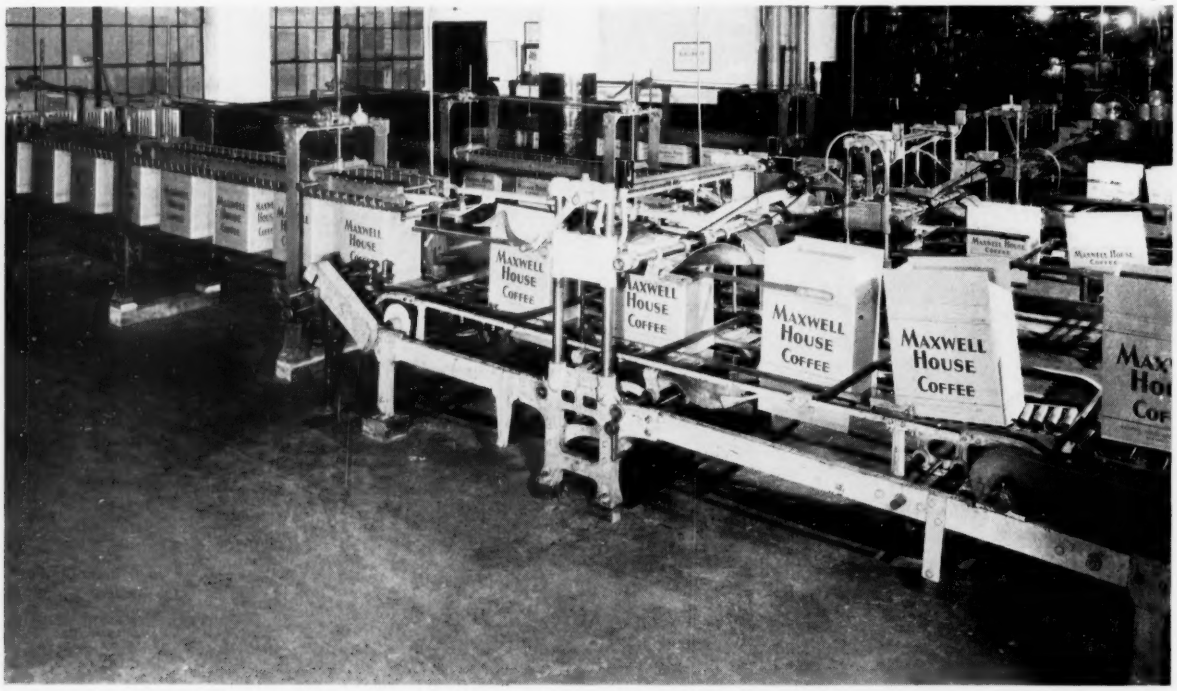
When paper cases first came into general use, it was almost uniformly the practice to make up or glue the bottoms of the containers before the goods to be shipped were packed therein. As a rule this was accomplished by applying adhesive to the inside bottom flaps, folding the outer flaps over and then placing weights on the inside of the case until the bond was formed. In many instances forms were provided over which the case to be made up was placed, adhesive applied to the flaps and pressure brought to bear on the flaps over the forms by means of a lever and toggle-joint. Of course, all this required the services of an operator to make up the bottoms of the cases before they were packed, and still another operator was required to seal the tops of the cases after the goods were packed therein. This last operation as a rule was accomplished by applying adhesive to the inner flaps, folding the outer flaps in place and then piling the cases one on top of the other on trucks or on the floor, the weight of the goods in the cases being the only pressure exerted to effect the bond.

It gradually became apparent that it was unnecessary to make up the bottoms of the cases before packing the contents therein, and to supply the demand for a machine to meet this requirement, the manufacturers of sealing equipment evolved a simple drying or compression unit consisting of a top and bottom roller bed, the rollers in the top

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bed being fitted with compression springs which caused constant pressure on the case as it passed through the machine.

The operation of this equipment required that the operator fold under the bottom flaps in the position which they would occupy when sealed, and before applying any adhesive the goods were packed in the case, the top flaps were folded over, adhesive applied and the case turned over with its bottom up. Then the operation of gluing was repeated on the other end of the case and the box inserted in the machine. This was a long step forward as compared with the original method of making up the bottoms of the cases, as it required but one person to operate the machine, resulting in a saving of 50 per cent of the labor cost.



Automatic top and bottom sealers, with pressure units, for shipping cases

The next logical step was the automatic gluing device for the application of adhesive to both the top and bottom flaps of the case with the goods already packed therein. With the advent of the automatic gluing device used in connection with the compression unit, the demand for automatic gluing and sealing units was greatly increased because of the tremendous saving in labor cost, and because through the use of automatic means, cases were sealed in a more uniform and satisfactory way than when the human element entered into the operation.

The manufacturers of automatic equipment have constantly had in mind the thought that it was up to the machine to properly seal all cases, irrespective of the slight irregularities that occur in the manufacture of paper shipping cases. It is only reasonable to expect that such irregularities may exist for there is no assurance as to exactly where the board will break at the score line. The score line itself is, as a rule, $^3/_8$ in. to $^1/_2$ in. wide, and if the hinging of the flap takes place exactly in the center of the score line, then the flaps will come together without the need of the lateral pressure. But if the break occurs near the top edge of the score line, the outside flaps will be short and some rolling pressure on the case is required to bring these flaps together to make close abutting seams. Manufacturers of automatic sealing equipment have furnished appliances on their machines which take care of these varied conditions.

In the past few years there has been a demand for what is known as strip or spot sealing in instances where cases are shipped to destination and then opened for repacking or resorting. To supply this want, manufacturers of sealing equipment have developed machines which lay narrow strips of adhesive over the flaps that are sufficient to seal the case and hold it in rigid rectangular form, but which make it possible to open the case without destroying the flaps so that the box can be resealed and used for the reshipment of goods.

A long felt want was filled when the machine manufacturers supplied automatic sealing equipment with a power-driven adjustment to effect the setting of the machine from one size case to another, as there are many manufacturers who have large runs of cases with many different sizes, and it was necessary to supply a means for making practically instantaneous change from one size to another in

order not to curtail production. Such machines have been developed and are used by many manufacturers whose cases vary widely in size.

There has been a constant demand in recent years for an increase of speed in the operation of sealing equipment, due to the speeding up of manufacturing lines, and the automatic sealing machines which are now manufactured in many instances have a capacity of as high as thirty to forty cases per minute, and they attain this speed without serious strain or wear and tear on the equipment involved.

There are practically no reciprocating parts in the modern case sealing equipment, all motions being rotary, and shaft speeds, even in the higher capacity machines, are comparatively slow, all of which make for low maintenance and repair costs.

One of the difficulties which the manufacturers of sealing equipment encountered when the automatic machinery was first evolved, was to find space in the manufacturer's plant of sufficient dimensions to permit of the installation of the machines in question. It is a fact that for a given number of cases there is not as much space required for an automatic sealing unit as would be required to seal the same number of cases by hand, but it has been evident that insufficient thought was given in the planning of certain plants, to provide the proper amount of space to carry on this important operation.

This condition has largely been eliminated as plant engineers and industrial architects have come to consider sealing equipment as absolutely necessary to the successful handling of the product and are giving more thought at this time to the providing of sufficient space at the proper point for the sealing installation.

It would be well for any manufacturer, contemplating the revamping of an old plant, or the building of a new one, to get in touch with the engineers of one or more of the sealing equipment manufacturers and to work with them to the end that equipment of the most economical description could be furnished, as it is often expensive to make installations of automatic machinery as an afterthought when proper planning beforehand would make for a better job.

GUMMED TAPE

by Edgar A. Clark

SOME fifty years ago the adhesive for making gummed paper was prepared from one part of gum arabic to two parts of cold water, while a weaker solution was three parts of water, and 10 per cent honey, and 10 per cent glycerine. At first the solution was applied with a large sponge and the sheets of paper allowed to dry. Cold water was used in preparing the solution, as it kept the paper from cockling. Then followed crude machines for applying the solution and from then on constant improvements were not only made in machines but also in solutions.

Today's machines apply the glue to the base stock most uniformly, of any determined thickness. As a base, kraft paper is most widely used and the raw stock governs greatly the performance of the finished product.

The quality of paper for making the best gummed papers, depends on certain properties, which should be decided both qualitatively and quantitatively. The process of preparing the pulp and the quality of the fibre, and its length, are factors that *must* be considered in obtaining pliability and strength.

In keeping with the advancements in paper making, scientific research has produced glues of varying components for many different requirements. So that the combining of a determined paper and a determined mix (glue formula) produce a perfect adhesive for the particular use wanted.

The three principal glues for making up a wide range of glue formulas (which are known as mixes) are fish, animal and dextrine. When these glues are used in number one quality for making formulas for special requirements nothing finer can be produced, provided, of course, the other ingredients are of equal quality value.

Dextrine is a soluble gumming substance formed from starch. Animal glue, as the name implies, is obtained by boiling to a jelly the hoofs, skins, etc., of animals. It is brownish in color and becomes viscid and tenacious when heated with water. "Fish" glue also suggests its origin.

Contrary to some opinions, it is not the amount of glue that is put on the paper but the quality of the mix (glue formula) used that allows instant and permanent adhesion in all kinds of weather.

Essential properties of gummed papers are positive adhesion, smoothness, tensile strength, bursting and tearing strength, sizing, evenness of structure, flexibility and durability, the latter being the papers' property to keep its strength without change for a considerable time. The United States Bureau of Standards have set up definite tests for gummed tape. First quality tapes are usually labeled showing they comply with these standards.

From large or jumbo rolls of gummed paper, smaller rolls of any desired width are slit. These rolls are called "gummed tape" and are sold mostly

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in 35-lb., 60-lb. and 90-lb. weights, basis 24 × 36–480, before gumming. Another form of gummed tape is known as "stay paper" and is used in the construction of set-up paper boxes in 90-lb., 100-lb. and 120-lb. weights, the most popular width being $^7/_8$ in. There are also used in large quantities other types of gummed tapes which have a foundation or base of cloth, holland, cambric, and paper and cloth combined. In fact "gummed tape for every purpose" would be a slogan with more truth than poetry in it, but the base and glue mix must be correct for each purpose.

Reverting to sealing packages, fibre or corrugated containers, gummed tape is a protection against pilferage, especially *when the tape is printed.* Then again consider the printed tapes' advertising value and the fact that when a container is sealed its contents are protected against dust and moisture.

There are several types of moistening machines on the market operated by hand or automatically. The essential requisites are uniform application of water, clean and accurate cutting of tape, and *speed*—quick delivery of any length tape moistened thoroughly all the way through the film of glue, from edge to edge and end to end. Tape will not stick if unevenly moistened or if it isn't moistened—good glues grip quickly and firmly if they are properly moistened and the tape applied correctly.

Small hand and automatic machines are usually built to accommodate tape up to $1^1/_2$ in. wide. The large machines are made for tape 2 in., $2^1/_2$ in., 3 in. and 4 in. wide and can easily be set to deliver the necessary length.

The taping of corrugated and fibre containers adds greatly to their strength, increasing safety of contents in transit, producing a neater package and at a delivered cost considerably under any other method for as safe protection.

Every moistening machine manufacturer can and will gladly furnish instructions as to how to tape packages correctly, fibre or corrugated containers in the cheapest and strongest way.

METAL STRAPPING

by C. S. Henderson

PROBABLY no other material has been such a potent force for economy in packing as has metal strapping. It lends reinforcement to both wood and fibre containers and upon its strength depends the success of baling. Many novel and ingenious applications serve the shipper. The Government not only approves[1] of the use of metal strapping but permits a decided economy in the specifications for a container which is to be properly reinforced with metal strapping. This economy, in the case of wooden boxes, runs from 20 to 35 per cent. It is to be noted that Freight Classification Rules require its use on bundles and bales, as well as on many specific articles. While the largest part of the metal strapping manufactured is used on domestic shipments, Steamship Freight Classification requires practically everything to be so reinforced.

Broadly speaking, metal strapping consists of two kinds: Nailed and Nailless. The former, as its name implies, is nailed on, whereas the latter is applied tightly about a container and the ends fastened together. Due to its speed and greater efficiency, the nailless system is much preferred. All strapping should be treated to prevent rust and corrosion and the two methods currently employed to accomplish this are painting and galvanizing.

The proper material to use and the most efficient system of application depend not only on the package, its size, weight and material, but also upon many other factors. Notable among these are the conditions surrounding the actual packing and loading, as well as the particular transportation hazards to which the package will be subjected. While there are several methods of application and a variety of equipment available to the shipper, it is recommended that a prospective user consult the manufacturer's packing specialists who are glad to render advice and suggestions regarding the use of their products.

[1] *Federal Standards Stock Catalog*, Sec 4, Part 5 (NN-B-621).

METAL STRAPPING OF BOXES

Both wood and fibre boxes are stronger and safer when metal strapped. This reinforcement about containers carrying heavy loads takes the explosive force of the shock when the package is dropped or roughly handled. It is customary to apply it about the sides, top and bottom and one or more straps are used. When one is applied it is usually placed about the center of the girth. When two are used one is spaced one-sixth the length of the box from each end. Not the least important service rendered by nailless strapping is its prevention of pilferage and concealed loss. In connection with this it is interesting to note that trade-marked seals quickly identify the shipper's band and prove an attractive medium of advertising.

The degree of tension to be used depends on the type of box strapped. For wooden containers, sufficient force is used to make the straps cut into the edges of the box. On solid fibre and corrugated

containers the strap should indent the edges but not severely enough to crush them.

The use of metal strapping on solid fibre and corrugated boxes is rapidly expanding. This is true of both the regular slotted carton and the Bliss style, as well as modified designs of both. Strapping is frequently employed to act in the double role of closure and reinforcement. When so employed it assures the arrival at destination without loss from pilferage, yet it permits the package to be quickly opened without damaging the carton. In many fields this has been found of great value, as the carton's contents can be inspected or altered and the same container used for re-shipment. Many commodities are shipped in metal-strapped fibre cases which heretofore went in more expensive types of containers.

UNIT-LOADING

Metal strapping is available in a wide variety of sizes, ranging from strap suitable for small light-weight packages to that of the proper size to tie all the merchandise in a freight car together into one unit. This unit-loading of carload freight shows considerable economy over other methods of bracing and reduces damage to a minimum. In both theory and practice it permits the entire load to shift as a unit and thereby dissipates the force of handling shocks. This rapid method of carload bracing is adaptable for mixed as well as solid uniform loads and is widely used by the railroads for bracing of inter-rail and water shipments.

BUNDLING

Whereas in the past almost everything was boxed for shipment, it is customary today for many articles to be strapped together as a unit and shipped without any other packing. This type of bundling saves both the container cost and the freight on its tare weight. While not applicable to all items this idea is spreading rapidly for certain types of commodities. Bundling of several standard packages into one unit is practiced to reduce handling costs, eliminate a multiplicity of labeling and to assure the arrival of the entire shipment as a unit. It frequently results in lower transportation costs.

SPECIAL USES

In an increasing number of cases it has been found that specific articles do not require complete packing protection. In these cases, a limited protecting element can be strapped to the article in question. Among such cases are batteries, which are frequently shipped with covers strapped over the terminals, as well as nested stove pipe, which are strap-bundled with suitable caps for end protection. On the other hand, economic circumstance has dictated the packaging of many items, such as sash-door and window-frames, etc., which heretofore were shipped as aggregate pieces.

SKID SHIPMENTS

It has been found both economical and expedient to ship many basic commodities, such as tin plate, sheet steel, coiled strip, paper, etc., on skids. In this method the commodity is strapped to the skid, which holds considerable weight, and as a rule these skid units are rapidly handled in loading or storage by either hand or power trucks. Although the unit is too heavy to admit of manual handling, the same truck that moves it about is frequently employed to stack one loaded skid on another and thus conserve storage space. Thus does metal strapping not only help solve the problems of shipping, but it plays a part in materials handling, both for storage and inter-plant movement.

METHODS OF WIRE STITCHING

by G. Prescott Fuller

ASSEMBLING and sealing containers by means of wire stitching is much used because of the ease of its application and the strength and security of the joint, each stitch giving a positive closure of the flaps. No setting time is required as when adhesives are used, and relatively cheap labor can be employed. Furthermore, if warehousing and repacking are desired, the stitches can be removed with a screwdriver or special tool without appreciable damage to the case, whereas a box with glued joints cannot be opened without serious tearing of the flaps. The method is economical, as inexpensive machinery is needed, and wire stitches cost only from three to five cents per thousand. Wire stitching is of general application, irrespective of the size of the container, the construction of the flaps or the kind of board of which it is made.

All wire stitching machines are variants of the simple box stitcher, which comprises a stitcher head, a body or frame supporting the head and also containing the driving mechanism, a base supporting the body, and a horizontal arm for holding the work, the end of the arm containing the clinching device. Stitching heads are of two general types, in one of which the wire is fed from the side while

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in the other the wire is fed from the top. Both types are constructed with means for feeding the wire and cutting it in predetermined lengths, receiving the piece of wire and transferring it to the bending mechanism, bending the ends of the wire to form legs, and driving the formed stitch through the work, a supporter being provided that supports and guides the stitch while being driven. The arm contains a grooved clincher which receives the legs of the stitch and bends them inward and tightly against the under side of the work.

Stitcher heads with side wire feed are usually employed for stitching containers since they can be more ruggedly constructed, while the vertical feed type is used for multiple head work because the heads can be placed closely together.

The clinching arm is quickly adjustable, up or down, to accommodate varying thicknesses of work and the wire feed is also instantly adjustable. Angle arms can be obtained for handling special classes of work, and adjustable gauges of various sorts can be had for facilitating repetitive operations. Machines are available with the stitcher head set at an angle so that stitches can be driven at 45 deg. to the grain or the corrugations.

Many different sizes and shapes of wire may be used, also the width of the crown can be changed, provided the proper parts are installed. The ends of the wire can be cut square or at an angle of 45 deg. as desired. The wire usually employed is of copperized or galvanized steel, .103 in. wide and .017 in. or .020 in. thick. Another type of wire is 0.60 in. wide, and .020 in. or .024 in. thick. The number of stitches of average length per pound of wire will run from 1600 to 2500, and the cost from three to five cents per thousand. Stitching wire comes on 10-lb. spoolless coils, an aluminum spoolholder being used in setting it up on the machine. The usual crown length is $^3/_8$ in. or $^7/_{16}$ in., although for some purposes longer or shorter crowns are employed.

The following sections describe the more usual applications of wire stitching in the assembling and sealing of containers, also some of the variants of the box stitcher.

REGULAR SLOTTED CONTAINERS

Box stitchers are used for stitching the manufacturer's seams of regular slotted containers. This operation can be performed on a standard box stitcher, the work being pushed along the arm as stitched, and the finished box afterward withdrawn. The box may also be folded over the arm and stitched as it is being withdrawn towards the operator. There is some advantage in making up boxes in this way in that the flange may be more accurately positioned along the adjacent side than when the box is folded on the creases and then stitched. Stitches are placed $2^1/_2$ in. apart, with tie stitches very often used at each end of the seam, although on boxes less than 18 in. in depth the classification permits a maximum spacing of 3 in.

It is better practice to use the so-called "slotted container stitcher" for this operation, this machine being equipped with a table on which the blank rests, and also an open head device (or clincher tongue) bolted to the stitcher head and rigidly or semi-rigidly supported thereby. The open head device is merely a double guiding member and clincher arm which holds the stitching flange and the opposite side panel in proper position during the stitching. The box blank is folded along two opposite creases so that the flange overlaps the adjacent panel, the flange and panel being guided through the open head and then stitched. The finished box is removed from the discharge end of the machine, thus making a continuous operation in one direction.

It is frequent practice to have the machine operated by two girls, one of whom picks up the blanks from the pile, folds them on the creases, and passes them to the second operator who pushes the blanks through the open head and stitches the seam. The speed of the operation depends upon the size, particularly the depth, of the boxes and the skill of the operator. As an example a box 12 in. deep would require five stitches and two girls can easily handle this work at a rate of 20 or more boxes per minute. The work can be equally well handled by one operator, but at a materially lower rate of production.

For stitching corrugated boxes, it is preferable to have the stitches diagonal to the corrugations to give greater holding power, and machines up to 48 in. in throat length are available for this work. The operation is carried on in the same manner as when the straight head machine is used.

Automatic R. S. C. stitchers are often used for this work where long runs of one size are involved, the machines having one stitcher head set at an angle of 45 deg., and which in some cases is of the duplex head type to permit driving double rows of stitches, or tie stitches at each end of the seam. The machine is equipped with devices which first stitch in proper position, and space the other stitches evenly and in predetermined number, the finished box being ejected by means of high speed rollers at the rear end. The machine is quickly adjustable for different sizes of boxes; and two operators can easily turn out 30 to 35 boxes per minute having five stitches in the seam. Larger boxes naturally require more time.

Multiple head box stitchers are sometimes used for this operation, all of the stitches in the seam being driven at one stroke of the machine, but for ordinary high production work the single head automatic R. S. C. stitcher is employed to a much greater extent than the multiple head type.

THREE PIECE (BLISS) BOXES

One style of three piece box has the stitching flanges made a part of the body blank and is usually

assembled on a box stitcher, a nub being placed over the end of the arm which forms a guide or spacer to bring the stitches at the center of the flange—a panel holder also being furnished for convenience. The operator first pushes the top flap of one end panel into the panel holder, then folds up the body blank into shape and pushes the same over the end panel. By holding the sides firmly in the hand the end panel is also held in position, and the box placed over the stitching arm and the bottom flange attached by means of a single stitch in the center. The three flanges are now stitched, tie stitches usually being placed at the top and bottom of the side flanges for greater strength. When offset slotting is used, with the bottom corners overlapped, a stitch should be placed as close as possible to the overlap, and double stitches in the overlap itself. A machine with a V arm may also be used, in which case the stitches are placed at an angle of 45 deg. to the grain or corrugation of the board, which gives a stronger joint.

Another type of this box has the stitching flanges made a part of the end panels, and is assembled on a special doublehead stitcher with 45 deg. heads. A movable and adjustable work table is placed between the stitcher heads, the edges of the table serving as guides in the assembly of the box. The first step consists in laying the body blank on the table with one top flap bent down in front of the operator, who holds the two end panels in position against the sides of the table so that the stitching flanges overlap the first side of the box in proper position for stitching. One stitch is placed while the table is in its outward position, the table pushed in and the remainder of the stitches placed in order, automatically spaced. The body blank with the ends attached is then moved forward and bent over the end of the table, thus presenting the bottom for stitching. The flanges on the bottom of the ends are folded in place and stitched as before. The third operation is a repetition of the second and completes the assembly of the box.

The second style of box can also be assembled on a V arm machine, one side at a time, but the speed is less than when a doublehead is employed.

RECESSED END BOXES

These may be stitched on regular box stitchers equipped with a gauge to properly position the stitches in the center of the flanges. If desired, an adjustable table can be placed below the clincher arm to support the box while being stitched, especially after it has been loaded.

TELESCOPE BOXES

The blanks for heavy telescope boxes are received flat by the customer and may be creased twice at each corner, with diagonal slotting, so that the corner flaps fold up in triangular form, either against the ends or the sides of the box as desired. This construction is shown in Fig. 1 and Fig. 2.

The flaps are stitched on a box stitcher in the manner shown, the number of stitches placed depending upon the weight and character of the con-

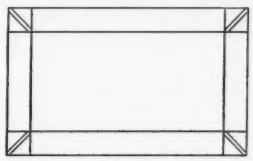


Fig. 1

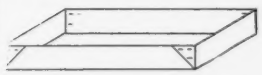


Fig. 2

tents. Sometimes one of the triangular flaps is folded outside of the end, and the other inside of the side, both being stitched in place to give added strength. Another method of making up such boxes is to crease and slot the corners so that when assembled, rectangular corner flaps are formed which

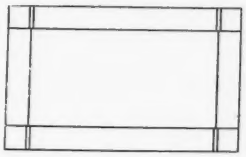


Fig. 3

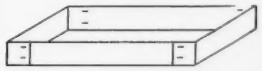


Fig. 4

are folded up against either the end or the side of the box as desired. This construction is shown in Fig. 3 and Fig. 4.

FOLDING SUIT BOXES

These are usually stitched by hand on single head box stitchers provided with gauges. Duplex head, or multiple head stitchers may be used, however.

WOOD END BOXES

Wood cleats are frequently applied to the end panels of three piece boxes; also panel boxes are often made up with wood frames and fibre sheets. The wood is usually $^{5}/_{16}$ in. to $^{3}/_{8}$ in. in thickness, and the board may be .100 in. or more thick. This combination of materials can be stitched on a standard box stitcher, but a special wire draw gear may be required in order to form staples with a sufficient length of leg to penetrate the wood and fibre and clinch on the other side.

CRACKER CADDY COVERS

The covers of the familiar cracker caddy are about $10^{1}/_{2}$ in. square, with flaps that are from $^{3}/_{4}$ in. to

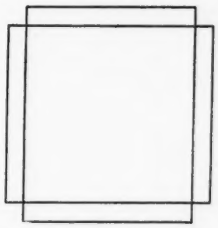


Fig. 5

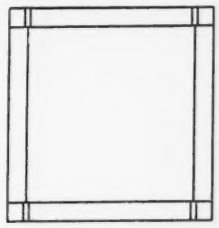


Fig. 6

1 in. wide. The flaps may be arranged in two ways, as shown in Fig. 5 and Fig. 6.

XUM

When the corners are cut out as in Fig. 5, the covers are stitched on a corner stay machine, using a stitch that has the crown bent at an angle of 90 deg., one leg being clinched in each flap. The driver is cut out in the center at an angle to drive the stitch with a 90 deg. angle crown, and a moving clincher mechanism is employed that clinches the staple legs flat against the flaps, which are brought tightly together. The arm of the machine is also shaped with a 90 deg. angle. In practice the operator sits in front of the machine and stitches the four corners in succession, frequently working at a rate of 15 or more covers per minute.

While the usual type of caddy cover is cut out at the corners, the one shown in Fig. 6 is sometimes used. This involves no more material, but makes use of the corner pieces (cut out in the other type) to strengthen the corners of the cover, slotting being employed as shown. Covers of this construction can be assembled on a standard box stitcher, the corners being folded in place and the corner flaps attached to the adjacent cover flaps in succession.

SHOPPING BAGS

One important use of box stitching is found in the attachment of handles to paper shopping bags. The handle itself is made of twisted fibre stock about $^1/_8$ in. to $^3/_{16}$ in. in diameter. The handle is bent to shape and placed in position with the two ends overlying the folded top of the bag, and two stitches are placed in each end to hold the same to the bag, a strip of fibre board being often inserted under the fold to increase the holding power. Standard box stitchers, fitted with gauges, are employed, but the bottom of the driver has a round groove cut in it which fits over the handle of the material, the driven stitches thus presenting a neat appearance and at the same time holding the handle securely. Duplex head machines may also be used for this work, gauges being employed to hold the two ends of the handle material in proper position for stitching.

BAG CLOSING

The tops of filled paper bags are often closed by wire stitching, using standard box stitchers. The top of the bag is either folded over once, or a double seal fold may be used, and two or more stitches inserted, fine wire such as No. 20, No. 25 or No. 1 Hybar being ordinarily used. A sufficiently light wire should be employed so that when the joint is pulled apart the wire will be held in the bag material and not loosened so that it can fall into the bag.

The sealing of heavy bags is best done on a machine with a horizontal stitcher head, the stitches being driven horizontally instead of vertically as usual. A table equipped with rolls is placed under the stitcher, or a standard conveyor is used, on which the bags stand with the flaps at the right height for closing. The top flaps are folded down and guided into the stitcher head between the driver and the clincher, using a bent sheet metal guide. This machine will handle coal bags and the like, which cannot easily be lifted and placed on the table of a standard box machine.

MISCELLANEOUS USES

Box stitchers are also used for a wide variety of other operations such as attaching articles to cards; fastening sheets of insulating strips together; holding the ends of gaskets; assembling box specialties; stitching the ends of fibre drums; forming attachment hooks on automobile upholstery; attaching canvas backs and seats on lawn and porch furniture; and for the assembly of berry baskets, display boxes, pastry containers, book matches, milk bottle caps, etc.

Special attachments, guides, feeding mechanisms, etc., can be installed to facilitate any of these operations where high production is desired. Multiple head machines may be used for some operations, also duplex head stitchers.

BOTTOM STITCHING

A bottom stitcher is nothing but a standard box stitcher without the clincher arm, a vertical post being substituted which is mounted on the base casting or frame. The post is $1^1/_2$ in. to $2^1/_2$ in. in diameter and the clincher is fitted into the top, which is reduced in area to 1 in. to $1^1/_2$ in. in diameter. The head of the post is adjustable, up or down, by hand to accommodate different thicknesses of board; and is usually constructed with a heavy spring inside the post, so that if extra heavy work is inserted without proper adjustment, the spring will give and the stitcher head not be damaged by the strain. The post is hinged at the bottom, and by depressing a special pedal may be tilted forward to permit easy insertion of the box before stitching. The best types of bottom stitchers have a considerable opening between the top of the post and the stitcher head, and when small or medium size boxes are being stitched the operator can usually place them over the post without tilting the latter forward, thus saving time in the operation. (This is the usual practice when stitching the bottoms of cracker caddies.) The regular operating pedal is then used to set the stitcher in operation. In some machines a single pedal is employed, and the post normally tilted in forward position. When the pedal is depressed the post is first moved into vertical position and locked in place, and the stitching then commences without further movement of the pedal. The stitching is not necessarily continuous, since by partly releasing the foot pedal the operation can be interrupted without releasing the post from its locked position. When the stitching is completed the post is unlocked by depressing a lever and thus returned to its tilted position and the box then removed. In some machines the foot pedal is de-

pressed part way to move the post into vertical position, and is then further depressed in order to actuate the stitcher.

Duplex head bottom stitchers are also used; a single stitcher head being arranged to drive two stitches at once, with the crowns in line and spaced two and one-half inches apart. A short bar is placed on the top of the bottom post, fitted with two clinchers properly spaced. Double head bottom stitchers have two stitcher heads which may be placed in fixed position (nonadjustable) for repetitive work on one side of box, or which may have narrow stitcher heads adjustably mounted. In either case a bar is fastened to the top of the post in which the clincher blocks are mounted, and for the adjustable machine the clincher blocks are movable over a certain range. For wide changes of adjustment several clincher bars may be furnished. The operation of such machines is described in detail as follows:

BOTTOM STITCHING OF SLOTTED CONTAINERS

In many industries it has been found good practice to stitch the bottom flaps of slotted containers before they are loaded, the advantage being that the box is thus held firmly in shape with a secure bottom closure, while the goods are being inserted. In the glass bottle industry, for example, cases are usually bottom stitched, and after loading the top flaps are temporarily sealed by spot gluing, temporary stitching, or taping and then shipped to the user, who fills the empty bottles, labels them, reloads in the box in which the empties were received, and then permanently seals the tops. For such work it is an obvious advantage to have the bottom flaps wire stitched. The same thing is done in the shoe industry, and also in many canning plants where a warehousing operation intervenes between the original packing and the final sealing of the cases.

Bottom stitching gives a secure and strong attachment of the bottom flaps, unaffected by moist conditions of storage which would weaken a closure made with tape or glue. Furthermore, cases can be bottom stitched very much more rapidly than they can be glued or taped. Several conditions of bottom stitching are met with, the more important being described below.

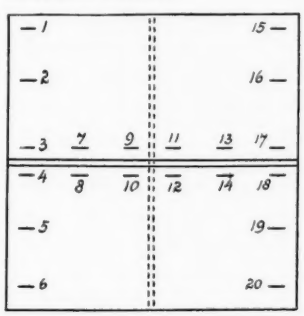


Fig. 7

All flaps of case meet in center. This condition is met in all square containers or in center special slotted cartons. When using a single head machine the stitches may be placed in the order shown in Fig. 7, or the stitches along the center may be placed first to hold the box in shape and the ends then stitched. The box should be held firmly from the two sides so as to hold the box square and avoid any gap between the outer flaps. The stitches should not be over $2^1/_2$ in. apart and the stitches along the edges of the abutting outer flaps are usually placed close to the edge. Double stitches are often placed at 9, 10, 11 and 12 the better to hold the inner flaps to the outer. Care should be taken that the stitches are tightly clinched so that the inside of the box will be smooth. When stitching corrugated boxes the container may be held at an angle to the machine, thus allowing stitches to be driven diagonally across the corrugations to give greater holding power.

Outer flaps meet, inner flaps not over 6 in. apart. The same method of stitching is used on slotted cartons which are not square, but in which the inner flaps are not more than six inches apart. No stitches, of course, are placed except where there are two thicknesses of board.

Outer flaps meet, inner flaps over 6 in. apart. Where the inner flaps are over 6 in. apart the Classification requires that if wire stitching is used, the outer flaps must be overlapped one inch or more and attached by wire stitches not over $2^1/_2$ in. apart.

Outer flaps overlapped. Containers of this construction are much used in the shoe and other industries, and when stitched on a single head machine, the center overlap (1 in. or more) is stitched first, the sides of the box being firmly held between the hands of the operator. As shown in Fig. 8, the stitches are placed across the overlap as the box is most easily held when the seam, or length of the box, is in the direction of the arm of the machine. The stitches on the ends may be placed either in the same direction as those on the seam or at 45 deg. or 90 deg. Of course all stitches may be placed parallel to the seam, but this is slower and not usually done. When the outer flaps are overlapped one inch or more the box may be of any length, without regard to the space between the ends of the inner flaps.

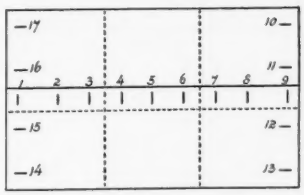


Fig. 8



Fig. 9

Full overlap boxes. Boxes with the bottom flaps fully overlapped are often sealed with glue; but when wire stitched it is usual to cut down the overlap to 1 in. in order to save material, except where the case is very long and narrow and extra

rigidity is wanted. Should it be desired to bottom stitch such a box, it would be done as shown in Fig. 9.

Double head bottom stitching. Fig. 10 shows a

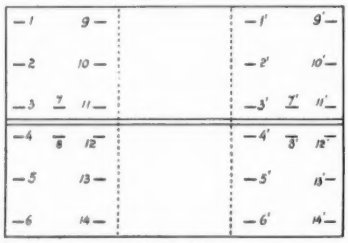


Fig. 10

method of bottom stitching of boxes, the outer flaps of which meet and the inner flaps meet or are not over 6 in. apart. The heads are set so that one stitch will be driven just inside the end of the box (1) and the other just inside the edge of the opposite inner flap (1′). The ends of the clincher bar form guides for spacing the stitches from the side of the box. The stitches are placed in the order indicated, one side being completed first, the box moved over on the post, and the other two rows placed. The stitches numbered 7, 7′, 8 and 8′, while they may be required under the Classification for relatively long boxes, are nevertheless not usually placed. An adjustable table is often fitted around the post to support the projecting top flaps of the box, which helps to hold the bottom flaps in flat position during the stitching operation. A disadvantage of double head stitching is that more stitches must be placed than are required by the Classification, the excess stitches being numbers 9, 10, 13, 14, 1′, 2′, 5′ and 6′. The extra cost of these eight stitches is, however, usually not of importance compared with the value of the extra speed of the operation.

In single head stitching from three to six boxes per minute can be bottom stitched by one operator, while on a double head machine the output can be increased by 75 per cent or more. The output, however, will not be doubled, since an important part of the time of the operation is required for folding the box in shape, placing on the machine, and for removing the finished box after stitching.

Duplex head bottom stitching. A duplex head stitcher, driving two stitches at once, spaced $2^1/_2$ in.

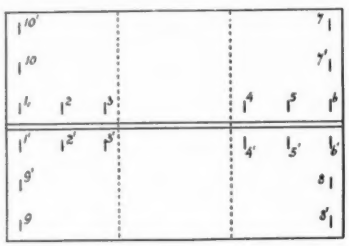


Fig. 11

on centers, can be used on all boxes, whether the outer flaps meet or overlap; whereas a double head stitcher cannot be used on overlapped flaps since there is no way of placing the stitches in the center part of the seam. When used on a box with the outer flaps meeting (Fig. 11) the center seam is stitched first, the stitches straddling the joint. By holding the box at an angle to the machine the stitches may be driven diagonally and thus brought closer to the joint than when placed at right angles. The ends of the box are then stitched, the stitches being placed in the order shown, two at a time.

When stitching a box with center overlap (Fig. 12) it is easier to stitch the ends first (since the box can be better held if both ends are equidistant from the body) the center seam being then completed. This can be reversed, however, and the center seam stitched first, but in this case one arm must be extended over the box to hold the opposite side until the first stiches have been driven. Duplex head stitching is not quite as fast as double head stitching since the position of the stitches in the center of the box, or on the overlap, must be judged by the eye

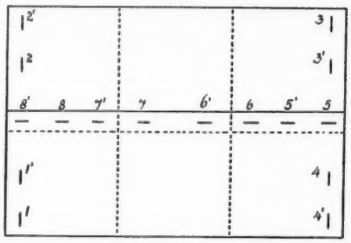


Fig. 12

(as in the case of single head stitching) although the stitches along the ends may be rapidly driven because the clinching arm forms a guide. It is, however, a method of wider application since it can be used without any machine adjustment for all sizes of boxes and for all flap constructions, and is much faster than single head stitching.

Cracker caddies. These small cracker boxes have the bottom flaps overlapped about $^3/_4$ in., and two stitches are used on the small sizes and four or more on large caddies. Single or duplex head machines may be used, with two operatives, one of whom folds the box in shape and hands it to the second who does the stitching. Speeds of 30 boxes per minute on single head machines are not unusual. Caddies are not covered by the Classification requirements, since they are for outside shipping containers, and therefore the usual number of stitches are not required for sealing the bottom of the box.

Top stitching. A standard top stitcher comprises a box stitcher without the solid clincher arm, in replacement of which a thin steel blade is used with the clincher set in the end. This blade anvil is made of forged steel and is tapered toward the front to make it as thin as possible, being somewhat flexible as a result. These machines are made with blades up 33 in. in length, which is adequate to handle any length of box in regular use. Methods

of top stitching boxes longer than this are given below.

Since the top stitching operation is always conducted on boxes that have been filled and may be of considerable weight, a work table is provided which is fitted with ball-bearings on which the box may be easily moved in any direction. This table is counterbalanced by means of springs or counterweights, and is quickly and easily adjustable up or down by hand, so that when the box is placed upon it the top flaps will be in proper position for the insertion of the blade anvil. When in use the operator lifts the case onto the table, stitches the flaps in order, and removes the finished case to a truck or conveyor. When containers of varying heights are used they are placed on the table and the latter adjusted to the proper height.

A recent development in top stitching involves the use of a table lifted by means of the motor on the machine. The table lifting mechanism is connected to the motor through a special clutch, and a separate double-action foot pedal is used for its control. When the back of the foot pedal is depressed by the operator the table and case are lifted, a stop being attached to the head which automatically brings the table to rest at just the right position for the blade anvil to enter under the top flaps. By depressing the front of the pedal the table is lowered again, while a brake is engaged when in neutral position to hold the table rigidly in place.

This machine can be placed beside a conveyor line, or made a part of the same, the lower position of the table being fixed at the proper level. Each loaded case as it comes to the stitcher is moved onto the table, raised by the power lift to the stitching point, stitched, lowered and pushed onto the discharge conveyor. This relieves the operator of the fatigue inherent in the lifting of each package by hand and also eliminates the danger of tearing the flaps and corners of the box when the latter is handled, unsupported by the table, before sealing. An operator using this type of machine can handle many more cases per day than by the old method, and with a minimum of physical effort and fatigue, since a 90-lb. case can be as easily and quickly manipulated as an empty one. The use of this machine also minimizes the danger of damage to the case or its contents by forcing the blade anvil under the top flaps when not in proper position.

Standard top stitchers are much used in the form of combination with a bottom post, the latter being removable while the blade anvil and table can be swung out of the way when used for bottom stitching. The change from one use to the other can be made in one minute, without the use of tools, and this machine is popular in small or highly departmentalized plants.

PORTABLE TOP STITCHER

This machine is entirely selfcontained, with built-in universal motor, and weighs but 20 lbs. In use it is suspended from an overhead trolley by means of a spring, so that the machine hangs freely and can be moved in any direction at the will of the operator without having to lift it. For top stitching small boxes or for setting temporary stitches for warehousing, a 10-in. blade anvil may be used, while for general purposes a C shaped anvil is employed. This is a miniature equivalent of an open head device, but capable of doing work not possible on an open head. The C anvil can be turned at the corners of the box, and when the last stitch has been driven the shape of the anvil is such that it can be withdrawn from the seam by a rotary motion, leaving not over a 2-in. opening. This machine is of advantage in sealing the tops of large and heavy boxes, since the latter do not require to be moved from the truck or conveyor, but the stitcher is brought to the box and moved freely around the seams.

Under the Classification requirements of Rule 41, top stitching is permitted when the outer flaps meet and the inner flaps are not over 6 in. apart, or where the top flaps overlap one inch or more, in which event the inner flaps may be any distance apart. In no case may the inner flaps be less than one inch in width, and they are frequently extended in three piece Bliss boxes to from two to four inches for extra strength and rigidity. The stitches must be not over $2^1/_2$ in. apart, and all seams must be completely stitched, allowance being made for a sufficient space for the withdrawal of the clinching device (blade anvil). It is also permissible under the rulings to stitch the side overlapping seam and to glue the end flaps, provided that the latter are not less than 2 in. in width and are brought outside the case.

Many combinations of top flap construction are met with in the trade, the methods of stitching the more important of these being described and shown in the following illustrations.

Three piece boxes or slotted containers overlapped in the center. The inner flaps of the box are first folded in place, the outer flaps folded over, the blade anvil inserted under the outer flaps (see Fig. 13) from end

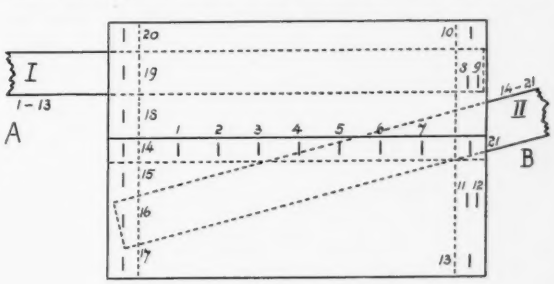


Fig. 13

A and stitches 1 to 7 placed in the overlap; the sides of the box being firmly held between the hands during this operation to keep the box square and the seam straight. The end of the blade is then placed under the inner flap at end B and two sets of tie or

double stitches 8–9 and 11–12 placed about two inches on each side of the center of the box, 10 and 13 being also placed in the corners at this time.

The box is now reversed, the blade inserted through the opening left between the tie stitches (care being taken that the clincher end is under the inner flap of end A) the stitches at end A being driven in the order shown. As the box is withdrawn over the anvil stitch 21 on end B is driven, this, of course, not passing through the inner flap. This completes the stitching operation; the space between the tie stitches being the only opening in excess of $2^1/_2$ in. between stitches.

Another method, sometimes used on can cases, involves leaving the opening for the withdrawal of the blade anvil at the side of the box instead of at the center (Fig. 14), the flaps being locked with a

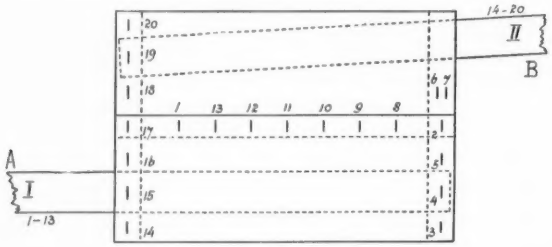


Fig. 14

tie or double stitch 6–7 as shown. This method offers the advantage that both ends of the overlap are stitched to the inner flaps, whereas, in the first method, only one end of the overlap is so fastened.

Sometimes an overlap case is encountered which is too long to be sealed by a blade anvil in the usual manner. Fig. 15 shows a method whereby cases

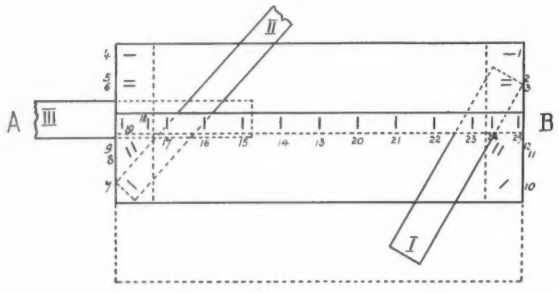


Fig. 15

can be sealed that are twice the length of the blade anvil. One outer flap is folded back, the blade inserted under the inner flap at end B, and stitch 1 and tie stitches 2–3 driven, the latter 2 in. from the center line of the box. Stitches 4, 5 and 6 are similarly placed at end A. The overlapping outer flap is now folded into position, the blade inserted diagonally and under the inner flap at end A, and stitches 7 and 8–9 driven—the latter being 2 in. from the center line. Stitches 10, 11 and 12 are placed in the same way. The blade is now inserted in the opening between the tie stitches at end A, and one half of the overlap stitched in the usual way, the case being then reversed and the remainder of the overlap stitched from end B. This is an

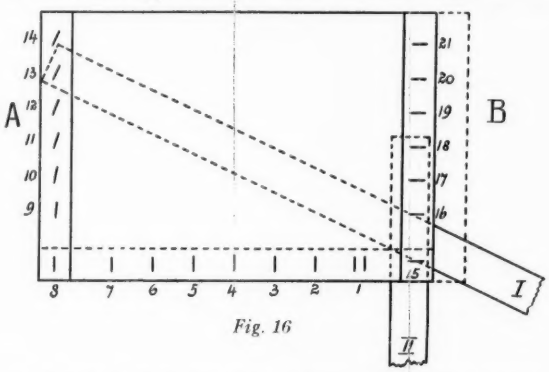


Fig. 16

awkward way to seal such a case, and greater speed can be attained by cutting off the inner flaps to $1^1/_4$ in. and using a portable stitcher, as described later.

The exact order in which the stitches on overlap containers are driven may be varied at will, but the essential points of the method are the initial fastening of the overlap to keep the box in shape, and the use of an opening left at one end (protected by tie stitches) to give access of the blade anvil.

Top flaps overlapped at the side. The preferred method of stitching boxes of this construction consists in folding the inner flaps outside the box, the top panel having been placed over the side overlapped flap, inserting the blade anvil from end B of the box under the side flap, and driving stitches 1 to 14 as shown in Fig. 16, a tie stitch being driven at 1, which is about 4 in. from the end of the box. The blade is now inserted under the top panel at end B, between the tie stitches and the end of the box and stitches 15 to 21 placed in the order shown. Stitch 15, of course, does not pass through the side flap, but only through the end flap and the top panel

Another method is shown in Fig. 17, the side over-

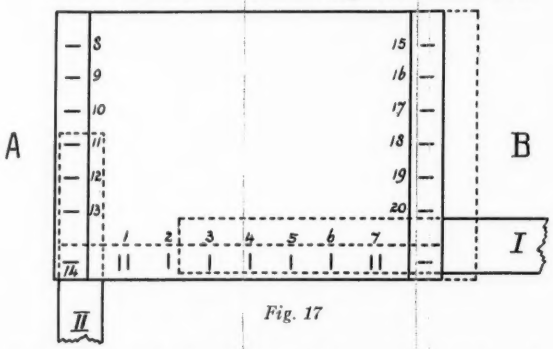


Fig. 17

lap being stitched with tie stitches at 1 and 7, and the side flaps then stitched separately. This method is somewhat slower than the one above described, as three positions of the anvil are used instead of two.

The box should be held firmly so that the side of the box is square and straight. The box is now

swung around on the table, the anvil inserted through the opening at one end of the side seam, and one overlapping inner flap stitched in place, the operation being then repeated on the other end of the box. As an alternative stitch 7 may be placed first, the anvil moved completely in, and the other stitches on the side seam placed in the order given. This construction is preferable to that involving a center overlap since the box is stronger and more rigid, the overlap of the outer flaps contributing more strength when placed at the side than when placed at the center.

If the side overlapped three piece box is to have the inner flaps glued, then the openings at the ends of the overlap are not left, but stitches placed along the entire length of the seam. In this case the top panel may be stitched under or over the flap as desired, although the glued flaps will have a better appearance, and be more secure, if the top panel is on the outside.

Top stitching with portable stitcher. When three piece boxes, overlapped in the center, are to be stitched with a portable machine the inner flaps must not be over $1^1/_4$ in. wide. The center seam is first completely stitched, followed by the two end seams. In stitching the center seam the sides of the box should be held securely to keep the same straight and uniform, and it is sometimes well (on large boxes) to have a frame or guide against which one side of the box is pushed by hand and so held. The C anvil is rotated out around the last stitch, leaving only a 2-in. opening (or less), thus making the joint more secure than when a straight blade anvil is used which involves leaving a 4-in. opening, as mentioned above. This machine is best adapted to handle large or heavy containers, especially the former, since in many instances the length or width of the case may exceed the length of any blade anvil whereas, when the portable is used, the length or width of the case may be as great as desired. In using the portable with C anvil, be sure that when stitching the side seams the clincher is under the ends of the overlap, so as to secure a complete seal at this point.

When stitching side overlapped three piece boxes with a portable, the flaps are all folded in place, the C anvil inserted in one end and moved along that end, the side, and the opposite end, without withdrawal except after the last stitch has been placed. This makes it possible to stitch the overlap to the inner flanges even at the corners, which cannot be done on a blade anvil, and thus eliminates the two large unstitched openings. As mentioned above, a side overlapped case can also have its side seam stitched on a regular open head device, the operation being the same as with the blade anvil except that the stitches must be placed in order.

Three piece box or slotted container with bellows flap. The (patented) bellows flap construction involves placing an extra crease in the inner flap which is made double the usual width, the extra flap so formed being reversely bent as shown in Fig. 18.



Fig. 18

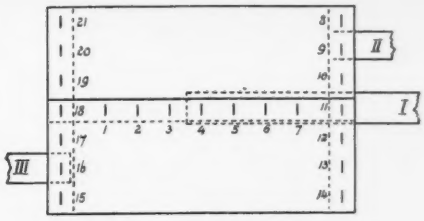


Fig. 19

The center overlap is first stitched on a blade anvil (Fig. 19) but without attachment to the inner flaps, the two end stitches being omitted. The blade anvil is then inserted in the bellows and the extra inner flap stitched to the top flaps along each end. When this method of sealing is employed no opening has to be left for the withdrawal of the blade anvil, which is an advantage particularly when the contents are in bulk (such as macaroni) and entrance of dust or sifting out of the goods are to be avoided. When the bellows flap is used at one end only the center overlap and the plain end are first completely stitched, the case being then withdrawn over the blade which is inserted in the bellows and the bellows flap end then stitched. This type of box can also be stitched on a portable stitcher to advantage the sequence of operations being the same as when a blade anvil is used.

When stitching a bellows flap case on a blade anvil machine the lengthwise seam may be half stitched from each end, inserting the blade only half way each time, thus permitting the use of a much smaller machine for a box of given length. This condition is infrequently met with but is occasionally of importance.

Three piece boxes or slotted containers with outer flaps meeting and inner flaps not over six inches apart. This type of flap construction is sometimes used on three piece boxes with extended inner flaps

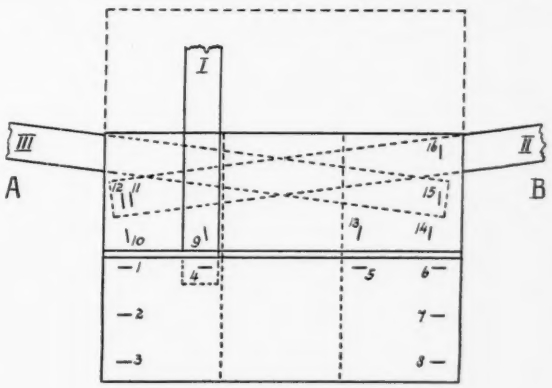


Fig. 20

and is the usual construction found in regular slotted containers. Three general methods of handling the stitching of the tops of such boxes are used, the

first of which consists in folding the inner flaps inside one outer flap, the other outer flap being bent back temporarily (see Fig. 20).

The blade anvil is then inserted under the inner flaps and stitches 1 to 4 and 5 to 8 driven. The second outer flap is now folded over in place, the blade inserted from end B and under the opposite inner flap, and stitches 9 to 12 driven, 11 and 12 being placed close together at a distance of about four inches from the edge of the box. The last operation consists of inserting the blade through the opening thus left at end A and placing stitches 13 to 16, thus completing the stitching in accordance with the Classification requirements. This method is applicable to boxes made of any kind of board, and the inner flaps may meet or be separated by any distance up to 6 in.

When top-stitched by the second method the inner flaps are both brought outside the box, the outer flaps being underneath the inner flaps (see Fig. 21).

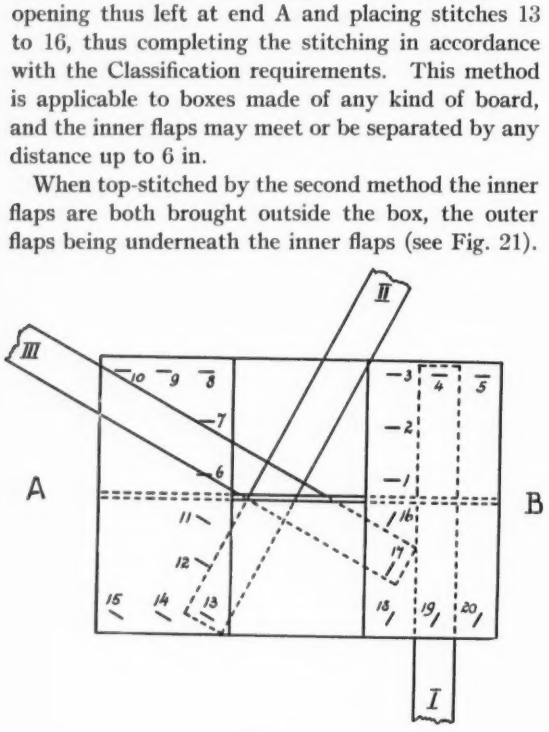


Fig. 21

The first step consists of inserting the blade between the abutting edges of the outer flaps and placing stitches 1 to 5 and 6 to 10, which completes the stitching of one side of the top. In step 2, the blade is inserted diagonally between the flaps through the opening left between the ends of the inner flaps and stitches 11 to 15 placed. Step 3 is similar for stitches 16 to 20, thus completing the operation.

This method is easily applied to boxes made of solid fibre that is not over .080 in. in caliper or of B Flute corrugated. It is a little more difficult with A Flute corrugated, and very hard to apply without damage to the board or contents of the box when heavy solid fibre or double-double corrugated board is used. This is because operations 2 and 3 require the blade anvil to be forced through the opening between the outer flaps. The method cannot be applied where the opening between the inner flaps is much less than 4 in., since the blade anvil cannot then be inserted without danger of breaking the edges of the board, or even of prying apart stitches 1, 6, 11, and 16.

The third method comprises folding one inner flap inside the box and the other one outside as shown in Fig. 22. The first step consists in folding

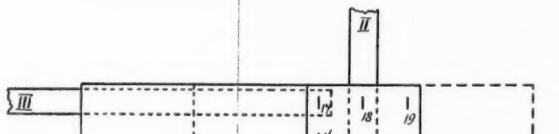


Fig. 22

back the inner flap at end B which is to be stitched outside the box, inserting the blade anvil, and driving stitches 1–9, a double stitch 5–6 being placed as shown, about 4 in. from the edge of the box. In step 2, the inner flap on end B is folded in place outside the outer flaps, the anvil inserted, and stitches 10–14 driven. In step 3 the anvil is inserted through the opening at end A between the tie stitches and the side of the box and under the top panel, and stitches 15 to 19 driven, thus completing the operation.

This method may be used on boxes of any of the usual materials, irrespective of the length of the gap between the inner flaps, and is frequently employed. It is open to the criticism that the top of the box is not flat, being higher on the side where the inner flap is brought outside for sealing.

Mattress Cases. These boxes are long and wide and only from 5 in. to 6 in. deep. The best method of stitching the end openings is to have the outer flaps overlap $1^1/_4$ in. and then stitched with a portable stitcher with C anvil. The box may be stood on end beside a platform so that the operator will be at a convenient working height. The bottom of the mattress case can also be stitched by the same method.

Cracker boxes and caddies. Cracker boxes are not usually top stitched, the covers being fitted over the

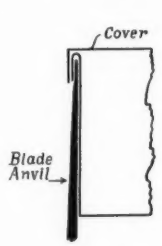


Fig. 23

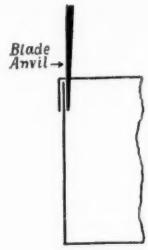


Fig. 24

tops of the boxes and taped to the sides. However, two methods of attaching the tops by wire stitching have been developed and are in use in a number of plants.

The first method requires the use of an inverted bellows flap on the body, comprising flaps on the top of the body which are turned back outside the box and the cover then fitted over the same.

Such a box is shown in section in Fig. 23. A special caddy stitcher is used for this work, in which the head drives horizontal stitches, and a short vertically positioned blade anvil is used which is movable. The box is placed in position on a table (adjustable as to height), and when the foot pedal is depressed the anvil moves upward under the inner flap and the stitches are then placed in the usual manner. When the foot pedal is raised, the anvil drops again and the stitched box can be moved around on the table for stitching the next side.

The second method is applicable to cracker boxes of regular construction, without the use of extra flaps. A horizontal stitcher is employed, the blade anvil moving downwards instead of upwards as in

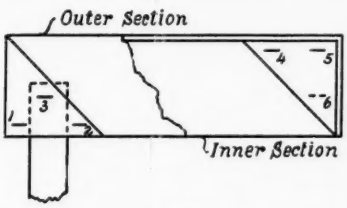


Fig. 25

the preceding method (Fig. 24). The cover may have die cut slots, placed close to the edge, for the insertion of the tip of the blade anvil (which is made very narrow and thin for this work). As each stitch is driven the anvil is automatically moved down through the slot and then withdrawn again.

When large cracker boxes are used made of corrugated board (which may or may not have separable covers), the previously cut slots may be omitted, the end of the blade being sharpened so that as it descends it cuts its own slot through the board. The use of slots in the top of the box does not leave appreciable openings, since the board is pliable and when the thin blade is withdrawn the fibre springs back into nearly its original position.

Bumper boxes. These boxes, used for automobile bumpers, shade cloth, roll screen wire, and other long articles, are relatively small on the ends. A horizontal stitcher is used with a regular blade anvil (thinner than usual), and the machine usually has no base, the body being bolted to a table on which the box is placed. The ends of the box are pushed against the blade which is brought inside the outer flaps and the necessary stitches then driven.

Telescope boxes. While telescope boxes are usually tied with rope to hold the two sections together, it is also possible to seal them by wire stitching on a machine with a blade anvil. Fig. 25 and Fig. 26 show such containers in partial section to indicate how the operation can be performed on boxes with either triangular or square cut flaps. The stitches marked 1 and 2 are those used to assemble the outer

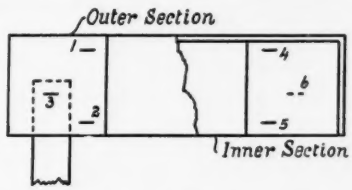


Fig. 26

half or cover section of the box, while 4 and 5 are those used to assemble the inner section. To stitch the two sections together the end of the blade anvil is forced under the flap of the inner section and between it and the end or side (as the case may be) and stitches (3 and 6) driven through the flap of the inner section and the overlapping cover, thus fastening the two sections together. Four stitches are used on each box.

Temporary top stitching. Where filled containers are to be warehoused, and must be opened again before the final sealing, only a few stitches are placed. In one method the top flaps are folded inside the inner flaps and four stitches placed by inserting the blade under the flaps and stitching the four overlapping edges as shown in Fig. 27.

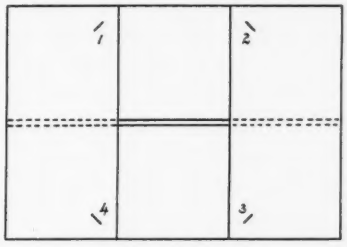


Fig. 27

The stitches are easily removed at the warehouse by means of a screw-driver, or by use of a special staple remover, the end of the tool being carefully inserted under the crown and the staple pried loose. Care must be taken not to cut into the liner of the board when this operation is done.

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Dobeckmun Co., The, Cleveland, O.—225
Interstate Folding Box Co., The, Middletown, O.
Jaite Co., The, Jaite, O.
Lawrence Bag Co., The, Middletown, O.
Milprint Products Corp., Milwaukee, Wis.
Munson Bag Co., Cleveland, O.
National Metal Edge Box Co., Philadelphia, Pa.—271
Oneida Paper Products, Inc., Brooklyn, N. Y.
Paramount Paper Products Co., Inc., Philadelphia, Pa.
Royal Co., Thomas M., Philadelphia, Pa.—328–329
Shellmar Products Co., Chicago, Ill.—Insert 276–277
Sisalkraft Co., Chicago, Ill.
Traver Corp., Chicago, Ill.
Union Bag & Paper Corp., New York, N. Y.—262
United States Envelope Co., Springfield, Mass.
Wolf Brothers, Philadelphia, Pa.

BAGS, TRANSPARENT CELLULOSE

Allied Paper Bag Corp., Baltimore, Md.
American Paper Goods Co., Kensington, Conn.—170
Betner Co., Ben. C., Devon, Pa.
Brown Paper Goods Co., Chicago, Ill.
Celloray Co., New York, N. Y.
Chicago Neostyle Envelope Co., Chicago, Ill.
Continental Paper & Bag Corp., New York, N. Y.—Insert Facing 208
Dobeckmun Co., The, Cleveland, O.—225
Envo Co., The, New York, N. Y.
Herz Co., Alexander, New York, N. Y.
Humitube Mfg Co., Peoria, Ill.
Interstate Folding Box Co., Middletown, O.
Jaite Co., The, Jaite, O.
Mason Envelope Co., New York, N. Y.
Milprint Products Corp., Milwaukee, Wis.
Munson Bag Co., Cleveland, O.
Newark Paraffine & Parchment Paper Co., Newark, N. J.
Oneida Paper Products, Inc., Brooklyn, N. Y.
Package Paper Co., Holyoke, Mass.—Insert 268–269
Print-A-Tube Co., Passaic, N. J.
Royal Co., Thomas M., Philadelphia, Pa.—328–329
Shellmar Products Co., Chicago, Ill.—Insert 276–277
Sweetnam, Inc., Geo., Cambridge, Mass.
Traver Corp., Chicago, Ill.
Unger-Commercial Co., The, Cleveland, O.
Union Bag & Paper Corp., New York, N. Y.—262
United States Envelope Co., Springfield, Mass.
Whiting-Patterson Co., New York, N. Y.
Wolf Brothers, Philadelphia, Pa.

BAGS, WAXED PAPER

Allied Paper Bag Corp., Baltimore, Md.
American Paper Goods Co., Kensington, Conn.—170
Betner Co., Ben. C., Devon, Pa.
Brown Paper Goods Co., Chicago, Ill.
Central Waxed Paper Co., Chicago, Ill.
Chicago Neostyle Envelope Co., Chicago, Ill.
Continental Paper & Bag Corp., New York, N. Y.—Insert Facing 208
Henle Wax Paper Mfg. Co., Inc., New York, N. Y.
Herz Co., Alexander, New York, N. Y.
Jaite Co., The, Jaite, O.
Lawrence Bag Co., The, Middletown, O.
Matthias Paper Corp., Philadelphia, Pa.
Munson Bag Co., Cleveland, O.
Newark Glassine Bag Co., Newark, N. J.
Newark Paraffine & Parchment Paper Co., Newark, N. J.
Oneida Paper Products, Inc., Brooklyn, N. Y.
Paramount Paper Products Co., Inc., Philadelphia, Pa.
Riegel Paper Corp., New York, N. Y.—Insert 324–325
Royal Co., Thomas M., Philadelphia, Pa.—328–329
Unger-Commercial Co., The, Cleveland, O.
Union Bag & Paper Corp., New York, N. Y.—262
United States Envelope Co., Springfield, Mass.

BAGS, WINDOW

Allied Paper Bag Corp., Baltimore, Md.
Betner Co., Ben. C., Devon, Pa.
Chicago Neostyle Envelope Co., Chicago, Ill.
Continental Paper & Bag Corp., New York, N. Y.—Insert Facing 208
Dobeckmun Co., The, Cleveland, O.—225
Interstate Folding Box Co., The, Middletown, O.
Jaite Co., The, Jaite, O.
Milprint Products Corp., Milwaukee, Wis.
Munson Bag Co., Cleveland, O.
Onieda Paper Products, Inc., Brooklyn, N. Y.
Royal Co., Thomas M., Philadelphia, Pa.—328–329
Shellmar Products Co., Chicago, Ill.—Insert 276–277
Union Bag & Paper Corp., New York, N. Y.—262
United States Envelope Co., Springfield, Mass.

BALE TIES

Acme Steel Co., Chicago, Ill.—165
American Steel & Wire Co., Chicago, Ill.
Gerrard Co., Inc., Chicago, Ill.
Grammes, L. F., & Sons, Allentown, Pa.
Roebling, John, & Sons Co., Trenton, N. J.
Shelby Wire Co., Shelby, O.
Signode Steel Strapping Co., Chicago, Ill.
Stanley Works, New Britain, Conn.
Tennant & Sons, Inc., C. W., New York, N. Y.
Union Steel & Wire Co., Indianapolis, Ind.

BARREL HEAD LINERS

Angier Corp., Framingham, Mass.
Consolidated Paper Co., Monroe, Mich.
Edgewater Paper Co., Menasha, Wis.
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—266
Hinde & Dauch Paper Co., Sandusky, O.
Hummel & Downing Co., Milwaukee, Wis.
Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.—242
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 336–337
Paterson Parchment Paper Co., Bristol, Pa.—282
Rexford Paper Co., Milwaukee, Wis.
Safepack Mills, Millis, Mass.
West Carrollton Parchment Co., West Carrollton, O.

BELTS, STEEL CONVEYOR (See Conveyors)

Acme Steel Co., Chicago, Ill.—165

BOTTLE PACKS, ENCLOSURES, TRAYS (Moulded Pulp)

Burt Co., Ltd., F. N., Buffalo, N. Y.—191
Hole-Tite Packing Corp., New York, N. Y.
Keyes Fibre Container, Inc., Waterville, Me.
Moulded Pulp Corp., Chicago, Ill.
National Folding Box Co., New Haven, Conn.
Owens-Illinois Glass Co., Toledo, O.—194–196
Traver Corp., Chicago, Ill.

BOTTLES, ALUMINUM

Aluminum Co. of America, Pittsburgh, Pa.
American Aluminum Ware Co., Newark, N. J.

BOTTLES, APPLIED COLOR

Dura Colors, Inc., Cleveland, O.—208
McKay Co., New York, N. Y.
Owens-Illinois Glass Co., Toledo, O.—194–196

BOTTLES, BEVERAGE

Buck Glass Co., Baltimore, Md.
Capstan Glass Co., Connellsville, Pa.
Chattanooga Glass Co., Chattanooga, Tenn.
Cunningham Glass Co., D. O., Pittsburgh, Pa.
Diamond Glass Co., Royersford, Pa.
Fairmont Glass Works, Indianapolis, Ind.
Glenshaw Glass Co., Glenshaw, Pa.
Hamilton Co., J. T. & A., Pittsburgh, Pa.
Hemingray Glass Co., Muncie, Ind.
Laurens Glass Works, Laurens, S. C.
Maryland Glass Corp., Baltimore, Md.—Insert Facing 209
Owens-Illinois Glass Co., Toledo, O.—194–196
Reed Glass Co., F. E., Rochester, N. Y.
Root Glass Co., Terre Haute, Ind.
Salem Glass Works, Salem, N. J.
Whitall-Tatum Co., Millville, N. J.

BOTTLES, CELLULOID, TRANSPARENT, ODORLESS

Hygienic Tube & Container Co., Newark, N. J.
Lusteroid Container Co., Inc., South Orange, N. J.—249

BOTTLES, COLORED

Dura-Colors, Inc., Cleveland, O.—208
Maryland Glass Corp., Baltimore, Md.—Insert Facing 209
Owens-Illinois Glass Co., Toledo, O.—194–196

BUYERS' DIRECTORY of the PACKAGING INDUSTRIES

BOTTLES, FANCY

Brockway Machine Bottle Co., Brockway, Pa.
Carr-Lowrey Glass Co., Baltimore, Md.
Fairmont Glass Works, Inc., Indianapolis, Ind.
Foster-Forbes Glass Co., Marion, Ind.
General Glass Co., Lancaster, O.
Glenshaw Glass Co., Glenshaw, Pa.
Hamilton Co., J. T. & A., Pittsburgh, Pa.
Hart Glass Mfg. Co., Dunkirk, Ind.
Hazel-Atlas Glass Co., Wheeling, West Va.
Imperial Glass Corp., Chicago, Ill.
Latchford Glass Co., Huntington Park, Calif.
Maryland Glass Corp., Baltimore, Md.—Insert Facing 209
Owens-Illinois Glass Co., Toledo, O.—194–196
Swindell Brothers, Baltimore, Md.
Wheaton Co., T. C., Millville, N. J.
Whitall-Tatum Co., Millville, N. J.

BOTTLES, FOOD PACKING

Ball Bros., Muncie, Ind.
Brockway Machine Bottle Co., Brockway, Pa.
Capstan Glass Co., Connellsville, Pa.
Carr-Lowrey Glass Co., Baltimore, Md.
Fairmont Glass Works, Indianapolis, Ind.
General Glass Co., Lancaster, O.
Glenshaw Glass Co., Glenshaw, Pa.
Hart Glass Mfg. Co., Dunkirk, Ind.
Hazel-Atlas Glass Co., Wheeling, W. Va.
Maryland Glass Corp., Baltimore, Md.—Insert Facing 209
Olean Glass Co., Olean, N. Y.
Owens-Illinois Glass Co., Toledo, O.—194–196
Reed Glass Co., F. E., Rochester, N. Y.
Salem Glass Works, Salem, N. J.
Tygart Valley Glass Co., Washington, Pa.

BOTTLES, MILK (Glass)

Buck Glass Company, Baltimore, Md.
Hamilton Co., J. T. & A., Pittsburgh, Pa.
Knox Glass Bottle Co., Knox, Pa.
Lamb Glass Co., Mt. Vernon, O.
Liberty Glass Co., Sapulpa, Okla.
Owens-Illinois Glass Co., Toledo, O.—194–196
Reed Glass Co., F. E., Rochester, N. Y.
Thatcher Mfg. Co., Elmira, N. Y.
Three Rivers Glass Co., Three Rivers, Texas
Universal Glass Products Co., Parkersburg, West Va.

BOTTLES, PAPER

American Paper Bottle Co., Toledo, O.
Burt Co., Ltd., F. N., Buffalo, N. Y.—191
Lily Tulip Cup Corp., New York, N. Y.
Mono Service Co., Newark, N. J.
National Folding Box Co., New Haven, Conn.
Purity Paper Vessels Co., The, Baltimore, Md.
Ritchie & Co., W. C., Chicago, Ill.—325
Russell Box Co., Medford, Mass.
Sealright Co., Inc., Fulton, N. Y.

BOTTLES, PROPRIETARY AND GENERAL

American Glass Works, Richmond, Va.
Brockway Machine Bottle Co., Brockway, Pa.
Carr-Lowrey Glass Co., Baltimore, Md.
Fairmont Glass Works, Indianapolis, Ind.
Foster-Forbes Glass Co., Marion, Ind.
Gayner Glass Works, Salem, N. J.
General Glass Co., Lancaster, O.
Glenshaw Glass Co., Glenshaw, Pa.
Hagerty Bros. & Co., New York, N. Y.
Hamilton Co., J. T. & A., Pittsburgh, Pa.
Hart Glass Mfg. Co., Dunkirk, Ind.
Hazel-Atlas Glass Co., Wheeling, West Va.
Kimble Glass Co., Vineland, N. J.—243
Knox Glass Bottle Co., Knox, Pa.
Maryland Glass Corp., Baltimore, Md.—Insert Facing 209
Owens-Illinois Glass Co., Toledo, O.—194–196
Pennsylvania Glass Products Co., Pittsburgh, Pa.
Pierce Glass Co., Port Allegany, Pa.
Reed Glass Co., F. E., Rochester, N. Y.
Salem Glass Works, Salem, N. J.
Swindell Brothers, Baltimore, Md.
Three Rivers Glass Co., Three Rivers, Texas
Wheaton Co., T. C., Millville, N. J.
Whitall-Tatum Co., Millville, N. J.

BOX BOARD, ASPHALT LINED

Consolidated Paper Co., Monroe, Mich.
Gair Co., Inc., Robt., New York, N. Y.
Sisalkraft Co., Chicago, Ill.

BOX BOARD, CLAY-COATED

American Coating Mills, Elkhart, Ind.
Container Corp. of America, Chicago, Ill.—203
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—266
Lowe Paper Co., Ridgefield, N. J.—Insert Facing 177
National Folding Box Co., New Haven, Conn.
Paper Affiliates Co., Inc., New York, N. Y.
United Paperboard Co., Inc., New York, N. Y.
Wabash Coating Mills, Wabash, Ind.

BOX BOARD, FOLDING

Alton Box Board & Paper Co., Alton, Ill.
American Coating Mills, Elkhart, Ind.
Artcote Papers, Inc., Irvington, N. J.—Insert 182–183
Consolidated Paper Co., Monroe, Mich.
Container Corp. of America, Chicago, Ill.—203
Federal Paperboard Co., Inc., Bogota, N. J.
Fibreboard Products, Inc., San Francisco, Cal.
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—266
Gair Co., Robert, New York, N. Y.
Gardner-Richardson Co., Middletown, O.
Harris Importing & Exporting Co., Glens Falls, N. Y.
Hinde & Dauch Paper Co., New York, N. Y., Boston, Mass., Philadelphia, Pa., Baltimore, Md., Richmond, Va., Buffalo, N. Y., Cleveland, O., St. Louis, Mo., Kansas City, Kans., Toronto, Ont., Montreal, Que.
Lawless Bros. Paper Mills, East Rochester, N. Y.
Lowe Paper Co., Ridgefield, N. J.—Insert Facing 177
Marathon Paper Mills, Rothschild, Wis.
Miami Valley Coated Paper Co., Franklin, O.—250
Middlesex Products Co., Cambridge, Mass.—Insert 318–319
National Folding Box Co., New Haven, Conn.
National Metal Edge Box Co., Philadelphia, Pa.—271
Ohio Boxboard Co., Rittman, O.
Paper Affiliates Co., Inc., New York, N. Y.
Republic Paperboard Co., Cincinnati, O.
Robertson Paper Box Co., Montville, Conn.
Schmidt & Ault Paper Co., York, Pa.
Sutherland Paper Co., Kalamazoo, Mich.
United Paperboard Co., Inc., New York, N. Y.

BOX BOARD, FOLDING, METALLIC COATED

Alaco Products, Inc., New York, N. Y.—Insert 166–167
Artcote Paper, Inc., Irvington, N. J.—Insert 182–183
Atlantic Chemical Co., Inc., Irvington, N. J.—Insert 166–167
Beveridge-Marvellum Co., Holyoke, Mass.—Insert 192–193
Lowe Paper Co., Ridgefield, N. J.—Insert Facing 177
Marvellum Co., Holyoke, Mass.—Insert 282–283
McLaurin-Jones Co., Brookfield, Mass.—Insert 262–263
Middlesex Products Co., Cambridge, Mass.—Insert 318–319
National Folding Box Co., New Haven, Conn.
New England Card & Paper Co., Springfield, Mass.
Paper Affiliates Co., Inc., New York, N. Y.
Reynolds Metals Co., Inc., New York, N. Y.—Insert Facing 285
United Mfg. Co., The, Springfield, Mass.—Insert 224–225

BOX BOARD, SET-UP

Alton Box Board & Paper Co., Alton, Ill.
Butterfield-Barry Co., New York, N. Y.
Consolidated Paper Co., Monroe, Mich.
Container Corp. of America, Chicago, Ill.—203
Continental Paper Co., Bogota, N. J.
Downingtown Paper Co., Downingtown, Pa.
Fibreboard Products, Inc., San Francisco Cal.
Franklin Board & Paper Co., Franklin, O.
Gair Co., Robt., New York, N. Y.
Lawless Bros. Paper Mills, East Rochester, N. Y.
McEwans & Sons, R. B., Whippany, N. J.
National Folding Box Co., New Haven, Conn.
Republic Paperboard Co., Cincinnati, O.
Sutherland Paper Co., Kalamazoo, Mich.
United Paperboard Co., Inc., New York, N. Y.

BOXES, CELLULOID, ODORLESS

Celluloid Corp., New York, N. Y.
Hyde, A. L., Grenloch, N. J.—241
Hygienic Tube & Container Co., Newark, N. J.
Lusteroid Container Co., Inc., South Orange, N. J.—249
Sillcocks-Miller Co., South Orange, N. J.—249

BOXES, CLOTHING and MILLINERY

Acme Folding Box Co., St. Louis, Mo.
American Paper Box Co., Grand Rapids, Mich.

BUYERS' DIRECTORY of the PACKAGING INDUSTRIES

Bartgis Bros. Co., Ilchester, Md.
Brown & Bailey Co., Philadelphia, Pa.
Climax Mfg. Co., Castorland, N. Y.
Elkin Mfg. Co., Philadelphia, Pa.
Fibreboard Products, Inc., San Francisco, Cal.
Gardner-Richardson Co., Middletown, O.
Hatch Co., C. F., Lowell Mass.—233
Lindley Box & Paper Co., Marion, Ind.
Morris Paper Mills, Chicago, Ill.
Natick Box & Board Co., Natick, Mass.
National Folding Box Co., New Haven, Conn.
National Metal Edge Box Co., Philadelphia, Pa.—271
Spear Box Co., New York, N. Y.

BOXES, CORRUGATED and SOLID FIBRE

Agar Manufacturing Corp., Whippany, N. J.
Albany Corrugated Container Corp., Albany, N. Y.
American Can Co., New York, N. Y.
American Corrugated Paper Products Corp., New York, N. Y.
American Corrugating Co., Grand Rapids, Mich.
Andrew Co., O. B., Chattanooga, Tenn.
Ashtabula Corrugated Box Co., Ashtabula, O.
Bird & Son, Inc., East Walpole, Mass.
Bogota Paper & Board Co., Bogota, N. J.
Brack Container Corp., Rochester, N. Y.
Consolidated Paper Co., Monroe, Mich.
Container Corp. of America, Chicago, Ill.—203
Corning Fibre Box Corp., The, Corning, N. Y.
Corrugated Container Co., Philadelphia, Pa.
Corrugated Container Corp., Columbus, O.
Crescent Box Corp., Philadelphia, Pa.
Densen Corrugated Paper Co., Ridgefield Park, N. J.
Dexter Folder Co., New York, N. Y.—209–224
Eggers-O'Flying Co., Omaha, Neb.
Evans Fibre Box Co., Chicago, Ill.
Federal Container Co., Philadelphia, Pa.
Fibreboard Products, Inc., San Francisco, Cal.
Florida Container Corp., Tampa, Fla.
Fort Wayne Corrugated Paper Co., Fort Wayne, Ind.
Gair Co., Robert, New York, N. Y.
Gardner-Richardson Co., The, Middletown, O.
Gaylord Container Co., Atlanta, Ga.
Gaylord, Inc., Robert, St. Louis, Mo.
Hercules Paper Box Co., Columbus, O.
Hinde & Dauch Paper Co., New York, N. Y., Boston, Mass., Philadelphia, Pa., Baltimore, Md., Richmond, Va., Buffalo, N. Y., Cleveland, O., St. Louis, Mo., Kansas City, Kansas, Toronto, Ont., Montreal, Que.,
Hummel & Downing Co., Milwaukee, Wis.
Hunt-Crawford Co., The, Coshocton, O.
Inland Box Corp., Indianapolis, Ind.
Iowa Fibre Box Co., Keokuk, Iowa
Jackson Box Co., The, Cincinnati, O.
Kieckhefer Container Corp., Milwaukee, Wis.
Kress Box Co., F. J., Pittsburgh, Pa.
Menasha Woodenware Co., Menasha, Wis.
Mengel Co., Louisville, Ky.
Mid-West Box Co., Chicago, Ill.
National Container Corp., Long Island City, N. Y.
National Metal Edge Box Co., Philadelphia, Pa.—271
New Orleans Corrugated Box Co., Inc., New Orleans, La.
Ottawa River Paper Co., Toledo, O.—257
Owens-Illinois Glass Co., Toledo, O.—194–196
Pa Pro Co., The, Glenfield, N. Y.
Paraffine Co., The, Inc., San Francisco, Cal.
River Raisin Paper Co., Monroe, Mich.
Rochester Folding Box Co., The, Rochester, N. Y.
Rockford Fibre Container Co., Rockford, Ill.
Schmidt Lithograph Co., San Francisco, Cal.
Schultz Co., A. Geo., Milwaukee, Wis.
Southern Container Co., Houston, Texas
Star Corrugated Box Co., Maspeth, L. I., N. Y.
Texas Corrugated Box Co., Dallas, Texas
Wabash Fibre Box Co., Terre Haute, Ind.
Waldorf Paper Products Co., St. Paul, Minn.
Warner Bros. Co., Bridgeport, Conn.—345
Weber & Co., David, Philadelphia, Pa.

BOXES, FANCY WOOD

Arrow Mfg. Co., Inc., Hoboken, N. J.—169
Artwood Products Co., Terre Haute, Ind.
Dennison Mfg. Co., Framingham, Mass.—Insert 188–189
New England Box Co., Greenfield, Mass.
Ornamental Wood Packaging Co., Chicago, Ill.—318
Peterson Bros., Chicago, Ill.—283
Pilliod Cabinet Co., The, Swanton, O.—284
Red Lion Cabinet Co., Red Lion, Pa.
Ruechert Mfg. Co., Providence, R. I.
Warner Bros. Co., Bridgeport, Conn.—345

BOXES, FOLDING and DISPLAY CARTONS

Ace Carton Corp., Chicago, Ill.
Acme Folding Box Co., New York, N. Y.
American Carton Co., Brooklyn, N. Y.
Atlantic Carton Corp., Norwich, Conn.
Badger Carton Co., Milwaukee, Wis.
Bloomer Bros. Co., Newark, Wayne County, N. Y.
Brooks Bank Note Co., Springfield, Mass.
Brooks & Porter, Inc., New York, N. Y.
Brown & Bailey Co., Philadelphia, Pa.
Cambridge Paper Box Co., Cambridge, Mass.
Campbell Box & Tag Co., South Bend, Ind.—199
Chicago Carton Co., Chicago, Ill.
Consolidated Paper Co., Monroe, Mich.
Container Corp. of America, Chicago, Ill.—203
Continental Folding Paper Box Co., Ridgefield, N. J.
Deisroth Co., Inc., W. H., Philadelphia, Pa.—206
Dennison Mfg. Co., Framingham, Mass.—Insert 188–189
Dodge Paper Box Co., E. F., Leominster, Mass.
Dowd Carton Co., M. S., Hartford, Conn.
Downingtown Paper Box Co., Downingtown, Pa.
Einson-Freeman Co., Inc., Long Island City, N. Y.—226
Empire Box Corp., Chicago, Ill.
Fibreboard Products, Inc., San Francisco, Cal.
Fitzhugh, Inc., Wm. W., Brooklyn, N. Y.
Forbes Litho. Mfg. Co., Boston, Mass.—180–181
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—266
Fort Wayne Paper Goods Co., Fort Wayne, Ind.
Gair Co., Robert, New York, N. Y.
Gardner-Richardson Co., Middletown, O.
Gebhart Folding Box Co., Dayton, O.
Gereke-Allen Carton Co., St. Louis, Mo.
Hatch Co., C. F. Lowell, Mass.—233
Hinde & Dauch Paper Co., Sandusky, O.
Howell & Co., F. M., Elmira, N. Y.—Insert 232–233
Hummel & Downing Co., Milwaukee, Wis.
Indianapolis Paper Container Co., Indianapolis, Ind.
International Folding Paper Box Co., North Bergen, N. J.
International Printing Co., Indianapolis, Ind.
Interstate Folding Box Co., Middletown, O.
Lebanon Paper Box Co., Lebanon, Pa.—245
Lord Baltimore Press, Baltimore, Md.
Lowe Paper Co., Ridgefield, N. J.—Insert Facing 177
Menasha Products Co., Menasha, Wis.
Milprint Products Corp., Milwaukee, Wis.
Morris Paper Mills, Chicago, Ill.
Myers, Inc., J. & P. B., Brooklyn, N. Y.
Nalco, Inc., New York, N. Y.—247
National Folding Box Co., New Haven, Conn.
National Metal Edge Box Co., Philadelphia, Pa.—271
New York Label & Box Corp., New York, N. Y.
Paper Package Co., Indianapolis, Ind.
Pictorial Paper Package Corp., Aurora, Ill.
Randolph Box & Label Co., Chicago, Ill.
Reynolds Metals Co., Inc., New York, N. Y.—Insert Facing 285
Richardson-Taylor-Globe Corp., Cincinnati, O.—322
Robertson Paper Box Co., Inc., Montville, Conn.
Rochester Folding Box Co., Rochester, N. Y.
Rossetti Lithographing Co., New York, N. Y.
Russell Box Co., Medford, Mass.
Sample-Durick Co., Springfield, Mass.
Schmitt, Geo. & Co., Inc., Brooklyn, N. Y.
Schultz Co., A. Geo., Milwaukee, Wis.
Shoup-Owens Co., Hoboken, N. J.—343
Shuttleworth Carton Co., Inc., New York, N. Y.
Simplex Paper Box Corp., Lititz, Pa.
Stecher-Traung Lithograph Corp., Rochester, N. Y.
Stecker Paper Box Co., Detroit, Mich.
Sutherland Paper Co., Kalamazoo, Mich.
Trenton Folding Box Co., Trenton, N. J.
Universal Folding Box Co., Brooklyn, N. Y.
U. S. Printing & Litho. Co., Cincinnati, O., Baltimore, Md., New York, N. Y.—Insert Facing 284
Waldorf Paper Products Co., St. Paul, Minn.
Warner Bros. Co., Bridgeport, Conn.—345
Whitney & Co., Inc., Leominster, Mass.
Wolverine Carton Co., Grand Rapids, Mich.

BOXES, MAILING

Ace Carton Corp., Chicago, Ill.
Brown & Bailey, Philadelphia, Pa.

For information concerning equipment listed below, see catalog pages indicated by numbers appearing after advertisers' listings

BUYERS' DIRECTORY of the PACKAGING INDUSTRIES

Cambridge Paper Box Co., Cambridge, Mass.
Campbell Box & Tag Co., South Bend, Ind. —199
Chicago Carton Co., Chicago, Ill.
Cin-Made Corp., Cincinnati, O.
Cleveland Container Co., Cleveland, O.—198
Consolidated Paper Co., Monroe, Mich.
Container Corp. of America, Chicago, Ill.—203
Cross Paper Products Corp., New York, N. Y.—205
Deisroth Co., Inc., W. H., Philadelphia, Pa.—206
Dennison Mfg. Co., Framingham, Mass.—Insert 188–189
Dodge Paper Box Co., E. F., Leominster, Mass.
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—266
Fort Wayne Paper Goods Co., Fort Wayne, Ind.
Gair Co., Robert, New York, N. Y.
Gardner-Richardson Co., Middletown, O.
Gaylord, Inc., Robert, St. Louis, Mo.
Gebhart Folding Box Co., Dayton, O.
Gereke-Allen Carton Co., St. Louis, Mo.
Hatch Co., C. F., Lowell, Mass.—233
Hercules Paper Box Co., Columbus, O.
Hinde & Dauch Paper Co., The, New York, N. Y., Boston, Mass., Philadelphia, Pa., Baltimore, Md., Richmond, Va., Buffalo, N. Y., Cleveland, O., St. Louis, Mo., Kansas City, Kans., Toronto, Ont., Montreal, Que.
Howell Co., F. M., Elmira, N. Y.—Insert 232–233
Illinois Carton & Label Co., Chicago, Ill.
Improved Mailing Case Co., New York, N. Y.
International Printing Co., Indianapolis, Ind.
Interstate Folding Box Co., Middletown, O.
Lebanon Paper Box Co., Lebanon, Pa.—245
Lord Baltimore Press, Baltimore, Md.
Mason Box Co., The, Attleboro Falls, Mass.—254–255
Molitor Box Co., Milwaukee, Wis.
Myers, Inc., J. & P. B., Brooklyn, N. Y.
National Folding Box Co., New Haven, Conn.
National Metal Edge Box Co., Philadelphia, Pa.—271
New York Label & Box Corp., New York, N. Y.
Owens-Illinois Glass Co., Toledo, O.—194–196
Paper Canister Co., Inc., Fernwood, Delaware Co., Pa.
Paper Package Co., Indianapolis, Ind.
R. C. Can Co., St. Louis, Mo.—319
Richardson-Taylor-Globe Corp., Cincinnati, O.—322
Ritchie & Co., W. C., Chicago, Ill.—325
Rowell Co., E. N., Batavia, N. Y.—327
Sample-Durick Co., Springfield, Mass.
Schultz Co., A. Geo., Milwaukee, Wis.
Sears Paper Box Co., Merle, Danville, Ill.
Sefton National Fibre Can Co., St. Louis, Mo.—331
Shoup-Owens, Inc., Hoboken, N. J.—343
Shuttleworth Carton Co., Inc., New York, N. Y.
Simplex Paper Box Corp., Lititz, Pa.
Trenton Folding Box Co., Trenton, N. J.
U. S. Printing & Litho. Co., Cincinnati, O.—Insert Facing 284
Warner Bros. Co., Inc., Bridgeport, Conn.—345
Waterbury Paper Box Co., Waterbury, Conn.—347
Whitney & Co., Inc., Leominster, Mass.
Young Bros., Providence, R. I.

BOXES, METAL

Aluminum Co. of America, Pittsburgh, Pa.
American Aluminum Ware Co., Newark, N. J.
American Can Co., New York, N. Y.
Anchor Cap & Closure Corp., Long Island City, N. Y.—258
Burdick & Son, Albany, N. Y.—188
Chase Brass & Copper Co., Inc., Container & Closure Division, New York, N. Y. (Powder, Rouge, Lipsticks, Compacts)—201
Continental Can Co., Inc., New York, N. Y. —Insert 168–169
Dennison Mfg. Co., Framingham, Mass.—Insert 188–189
Doehler Die Casting Co., Toledo, O.
Goertz & Co., A., Newark, N. J.
Heekin Can Co., Cincinnati, O.
Majestic Metal Specialties, Inc., New York, N. Y.—251
Metal Package Corp., New York, N. Y.—252
New Jersey Zinc Co., New York, N. Y.—Insert 240–241
Scovill Manufacturing Co., Waterbury, Conn.
Tin Decorating Co. of Baltimore, The, Baltimore, Md.—339

BOXES, METAL (Covered and Lined)

Arrow Mfg. Co., Inc., Hoboken, N. J.—169
Dennison Mfg. Co., Framingham, Mass.—Insert 188–189
Farrington Mfg. Co., Boston, Mass.

BOXES, MOLDED (Plastic)

American Insulator Corp., New Freedom, Pa.—168
American Record Corp., Scranton, Pa.—171
Armstrong Cork & Insulation Co., Lancaster, Pa.—173
Auburn Button Works, Inc., Auburn, N. Y. —177
Bakelite Corp., New York, N. Y.—179
Boonton Molding Co., Boonton, N. J.
Celluloid Corp., New York, N. Y.
Chicago Molded Products Corp., Chicago, Ill.—190
Colt's Patent Fire Arms Mfg. Co., Hartford, Conn.—182
Diemolding Corp., Canastota, N. Y.
Durite Plastics, Division of Stokes & Smith Co., Philadelphia, Pa.—186–187
General Electric Co., Plastics Dept., River Works, West Lynn, Mass. (Textolite, Cetec, Fabroil.)—259
General Industries Co., The, Elyria, O.—230
General Plastics, Inc., North Tonawanda, N. Y.—264—265
Hyde, A. L., Grenloch, N. J.—241
Kurz-Kasch Co., Dayton, O.
Mack Molding Co., Wayne, N. J.
Mundet Cork Corp., Brooklyn, N. Y.—270
Northern Industrial Chemical Co., Boston, Mass.
Norton Laboratories, Inc., Lockport, N. Y.
Plastic Molding Co., Sandy Hook, Conn.
Reilly Tar & Chemical Corp., Indianapolis, Ind.—320
Resinox Corp., New York, N. Y.—189
Reynolds Spring Co., Jackson, Mich.
Shaw Insulator Co., Irvington, N. J.
Synthetic Plastics, Inc., New York, N. Y.
Tech-Art Plastics Co., New York, N. Y.—332
Toledo Synthetic Products, Inc., Toledo, O.—192
Waterbury Button Co., The, Waterbury, Conn.—344
Wheeling Stamping Co., Wheeling, W. Va.—346

BOXES, PAPER SET-UP

Letters indicate general class of boxes manufactured:
A—Covering Machine-made Boxes.
B—Automatic Machine-made Boxes.
C—Hand-made Boxes.
D—Hand-made and Machine-made Boxes.
g.l.—Indicates manufacture of general line of boxes in the class specified, except certain types which are specialties or specialized in, such as Candy, Holiday, Face Powder, Perfumery, Carbon Paper, Jewelry, Cases and Shelf Boxes, Hinged Lid and Display, Slide Boxes, Cigarette Boxes, Mailing Boxes and special small boxes. These are indicated by name.

Alderman Paper Box Co., Rochester, N. Y.
A, B, C and D, g.l.
Arrow Mfg. Co., Inc., Hoboken, N. J.—169
C, Jewelry, Specialties, g.l. Metal, Satin lined, Wood, Leather, Paper
Bisler, Inc., G. A., Philadelphia, Pa.
A, B, C and D, candy and holiday
Box Craft Co., Cambridge, Mass.
A, B, C and D
Bristol Paper Box Co., Bristol, Va.
A, g.l.
Buedingen Co., Inc., Ferdinand, Rochester, N. Y.—342
A, C and D, g.l.
Buffington Co., F. H., Providence, R. I.
A, g.l.
Burt Co., Ltd., F. N., Buffalo, N. Y.—191
A, B, C and D, face powder, perfumery, pill and drug, slide boxes, cigarette boxes
Cambridge Paper Box Co., Cambridge, Mass.
A, B, C, D, g.l., face powder, perfumery, pill and drug, slide, cigarette, candy, mailing
Campbell Box & Tag Co., South Bend, Ind.—199
Casselman, Inc., T. & E., New York, N. Y.
A, B, C and D, g.l.
Danbury Square Box Co., The, Danbury, Conn.
A, C and D, g.l.
Deisroth Co., Inc., W. H., Philadelphia, Pa.—206
A, B, C, D, g.l., candy, holiday, mailing
Dennison Mfg. Co., Framingham, Mass.—Insert 188–189
D—complete line of all types and specialties
Dix, Inc., J. J., New York, N. Y.
Dodge Paper Box Co., E. F., Leominster, Mass.
C, D, g.l.
Doolittle Co., The, E. J., Meriden, Conn.
A, C and D, g.l.
Dorfman & Co., Inc., A., New York, N. Y.
Du-Frank Corp., Brooklyn, N. Y.
Fairchild Corp., E. E., Rochester, N. Y.
A, B, C and D, g.l.

XUM

BUYERS' DIRECTORY of the PACKAGING INDUSTRIES

For information concerning equipment listed below, see catalog pages indicated by numbers appearing after advertisers' listings

Fisher Paper Box Co., Inc., Minneapolis, Minn.
A, B, C and D, g.l.
Fleisig, Inc., H., New York, N. Y.
Fort Wayne Paper Box Co., Fort Wayne, Ind.
A, B, C and D, g.l.
Gates Paper Co., Ltd., Los Angeles, Cal.
Round Boxes
Grand Rapids Paper Box Co., Grand Rapids, Mich.
A, B, C and D, g.l.
Great Lakes Paper Box Co., The, Cleveland, O.
Hatch Co., C. F., Lowell, Mass.—233
A, B, C and D, g.l.
Henry Co., Ira L., Watertown, Wis.
A, C and D, g.l.
Hollywood Paper Box Corp., Hollywood, Cal.
A, B and D, g.l.
Holman Paper Box Co., St. Louis, Mo.
A, B and D, g.l.
Howell & Co., F. M., Elmira, N. Y.—Insert 232–233
A, B and D, g.l.
Illinois Paper Box Co., Chicago, Ill.
A, C and D, g.l.
Jones Paper Box Co., Jesse, Philadelphia, Pa.
A, B, C and D, g.l.
Kalamazoo Paper Box Co., Kalamazoo, Mich.
A, B, C and D, g.l.
Kentucky Paper Box Co., Inc., Louisville, Ky.
A, B, C and D, g.l.
Keystone Box Co., Pittsburgh, Pa.
A, B, C and D, g.l.
Killian Co., George P., Washington, D. C.
A, B, C and D, g.l.
Kroeck Paper Box Co., Chicago, Ill.
A, g.l.
Landowne Co., J., Inc., Brooklyn, N. Y.
D, g.l.
Lebanon Paper Box Co., Lebanon, Pa.—245
A, B, C and D, g.l. Mitre Cigar Boxes
Lorscheider-Schang Co., Rochester, N. Y.
A, B, C and D, g.l.
Manufacturers Box Co., Milwaukee, Wis.
Maryland Paper Box Co., Baltimore, Md.
A, B, D, g.l., Holiday, shelf
Mason Box Co., The, Attleboro Falls, Mass.—254–255
A, B, C and D, g.l.
Miller, W. P., Inc., Philadelphia, Pa.
A, B, C and D, g.l.
Molitor Box Co., Milwaukee, Wis.
A, B, C and D, g.l.
National Folding Box Co., New Haven, Conn.
National Metal Edge Box Co., Philadelphia, Pa.—271
Neumann Co., The Robert, Cincinnati, O.
A, C and D, g.l.
New York Label & Box Corp., New York, N. Y.
A, B, g.l., pill and drug
Norristown Box Co., Norristown, Pa.
A and B, g.l.
Ohio Boxboard Co., Cleveland, Ohio
A, B, C and D, g.l.
Paper Package Co., Indianapolis, Ind.
A, B, C and D, g.l.
Pearson Paper Box Co., Kansas City, Mo.
A, C and D, g.l.
Perfumers & Jewelers Box Co., New York, N. Y.
A, B, C and g.l.
Pharmacy Paper Box Co., Chicago, Ill.
A, B and C
Pictorial Paper Package Co., Aurora, Ill.
A, B, C and D, g.l.
Plumly, E. K., Philadelphia, Pa.
D, g.l., Perfume
Randolph Paper Box Co., Richmond, Va.
A, B and D, g.l.
Rapid Cutting Die Co., Brooklyn, N. Y.
A, B, g.l.
Ritchie & Co., W. C., Chicago, Ill.—325
A, B, C and D, g.l.
Rowell Co., Inc., E. N., Batavia, N. Y.—327
A, B and D, g.l.
Rubin, Jas. & Sons, Inc., Brooklyn, N. Y.
A, B and g.l.
Schall & Co., New York, N. Y.
Confectionery
Schleicher Paper Box Co., F. J., St. Louis, Mo.
B, C and D, candy
Schoettle Co., Edwin J., Philadelphia, Pa.
A, B, C and D, g.l.
Schultz & Co., H., Chicago, Ill.
A, B, C and D. g.l.
Schultz Co., A. Geo., Milwaukee, Wis.
A, B, C and D, g.l.
Sears Paper Box Co., Merle, Danville, Ill.
A, B, C and D, g.l.
Seeley Tube & Box Co., Newark, N. J.
A, B and D, g.l.
Shoup-Owens, Inc., Hoboken, N. J.—343
A, B, C, D, g.l.
Simplex Paper Box Corp., Lititz, Pa.
Smith Co., S. K., Chicago, Ill.—335
Spitzer Paper Box Co., Toledo, O.
A, B
Star Case Co., New York, N. Y.
C, Jewelry, specialties, Leather
Stecker Paper Box Co., Detroit, Mich.
Trum, Inc., E. J., Brooklyn, N. Y.
A and D, g.l.
United Paper Box Co., Chicago, Ill.
Voss Corp., Karl, Hoboken, N. J.—343
Face Powder, perfumery, C, g.l.
Waldeck & Co., Jersey City, N. J.
A, B, C and D, g.l.
Warner Bros. Co., Bridgeport, Conn.—345
A, B, C and D
Waterbury Paper Box Co., Waterbury, Conn.—347
A, B, C and D, g.l.
Whitney & Co., Inc., Leominster, Mass.
C, D, g.l.
Wing Paper Box Co., Hendersonville, N. C.
g.l.
Young Bros., Providence, R. I.
A, B, C and D, g.l.
Youse, C. J., Co., Baltimore. Md.
A, B, C and D, candy

BOXES, WINDOW
(Transparent Cellulose)

Albert Paper Box Co., Inc., Brooklyn, N. Y.
Brooks & Porter, Inc., New York, N. Y.
Burt Co., Ltd., F. N., Buffalo, N. Y.—191
Cambridge Paper Box Co., Cambridge, Mass.
Campbell Box & Tag Co., South Bend, Ind.—199
Container Corp. of America, Chicago, Ill.—203
Deisroth Co., Inc., W. H., Philadelphia, Pa.—206
Dennison Mfg. Co., Framingham, Mass.—Insert 188–189
Empire Box Corp., Chicago, Ill.
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—266
Gair Co., Robert, New York, N. Y.
Hatch Co., C. F., Lowell, Mass.—233
Howell Co., F. M., Elmira, N. Y.—Insert 232–233
Interstate Folding Box Co., Middletown, O.
Lebanon Paper Box Co., Lebanon, Pa.—245
Milprint Products Corp., Milwaukee, Wis.
Nalco, Inc., New York, N. Y.—247
National Metal Edge Box Co., Philadelphia, Pa.—271
Richardson-Taylor-Globe Corp., Cincinnati, O.—322
Ritchie & Co., W. C., Chicago, Ill.—325
Rowell Co., E. N., Batavia, N. Y.—327
Russell Box Co., Medford, Mass.
Shoup-Owens, Inc., Hoboken, N. J.—343
Stecher-Traung Litho. Corp., Rochester, N. Y.
Voss Corp., Karl, Hoboken, N. J.—343
Warner Bros., Bridgeport, Conn.—345
Waterbury Paper Box Co., Waterbury, Conn.—347
Whitney & Co., Inc., Leominster, Mass.

BOX LACES

American Lace Paper Co., Milwaukee, Wis.
Milwaukee Lace Paper Co., Milwaukee, Wis.
Sayford Co., Inc., Frank M., Brooklyn, N. Y.
U. S. Lace Paper Works, Brooklyn, N. Y.

BOX REINFORCEMENT
(Strapping-Wire)

Acme Steel Co., Chicago, Ill.—165
American Steel & Wire Co., Chicago, Ill.
Gerrard Co., Inc., Chicago, Ill.
Parker Machine Works, Riverside, Cal.
Seneca Wire & Mfg. Co., Fostoria, O.
Signode Steel Strapping Co., Chicago, Ill.
Stanley Works, New Britain, Conn.
Tennant Sons & Co., C., New York, N. Y.

BOX RIBBONS (Ties, Tinsel, etc.)

Adirondack Tinsel Co., Hudson Falls, N. Y.
Ben-Mont Fancy Papers, Inc., Bennington, Vt.—Insert Facing 176
Chicago Printed String Co., Chicago, Ill.
Dennison Mfg. Co., Framingham, Mass.—Insert 188–189
Du-Tone Ribbon Corp., New York, N. Y.—207
Fibre Cord Co., New York, N. Y.
Freydberg Bros., Inc., New York, N. Y.—244
Hy-Sil Mfg. Co., Revere, Mass.
Milwaukee Printed String Co., Milwaukee, Wis.—275
National Tinsel Mfg. Co., Manitowoc, Wis.
Taft Co., R. C., Chicago, Ill.

BOX TOP PADDING

American Lace Paper Co., Milwaukee, Wis.
Kimberly-Clark Corp., Neenah, Wis.—234–235
Milwaukee Lace Paper Co., Milwaukee, Wis.
Traver Corp., Chicago, Ill.
Union Wadding Co., Pawtucket, R. I.

BOX WRAPS

See Lithographers and various paper headings

BUYERS' DIRECTORY of the PACKAGING INDUSTRIES

CADDIES, CRACKER (Moisture-proof and Grease-proof)

Chicago Carton Co., Chicago, Ill.
Consolidated Paper Co., Monroe, Mich.
Container Corp. of America, Chicago, Ill.—203
Dexter Folder Co., New York, N. Y.—209–224
Empire Box Corp., Chicago, Ill.
Fibreboard Products, Inc., San Francisco, Cal.
Gair Co., Robert, New York, N. Y.
Gardner-Richardson Co., Middletown, O.
Gaylord Co., Robert, St. Louis, Mo.
Hinde & Dauch Paper Co., St. Louis, Mo., Kansas City, Kansas, Toronto, Ont., Montreal, Que.
Hummel & Downing Co., Milwaukee, Wis.
International Printing Co., Indianapolis, Ind.
National Metal Edge Box Co., Philadelphia, Pa.—271
River Raisin Paper Co., Monroe, Mich.
Rochester Folding Box Co., Rochester, N. Y.
Sefton National Fibre Can Co., St. Louis, Mo.—331
Traver Corp., Chicago, Ill.

CAN SEALING COMPOUNDS

Dewey & Almy Chemical Co., Cambridge, Mass.

CANS, FIBRE

American Can Co., New York, N. Y.
Bloomer Bros. Co., Newark, Wayne County, New York, N. Y.
Boothby Fibre Can Co., Boston (Roxbury), Mass.
Cambridge Paper Box Co., Cambridge, Mass.
Canister Co., The, Phillipsburg, N. J.
Chicago Paper Tube & Can Co., Chicago, Ill.
Cin-Made Corp., Cincinnati, O.
Cleveland Container Co., Cleveland, O.—198
Cross Paper Products Corp., New York, N. Y.—205
Fibreboard Products, Inc., San Francisco, Cal.
Fonda Container Co., Inc., Utica, N. Y.
Indianapolis Paper Container Co., Indianapolis, Ind.
Iowa Fibre Box Co., Keokuk, Ia.
Marathon Paper Mills Co., Rothschild, Wis.
Menasha Products Co., Menasha, Wis.
Molitor Box Co., Milwaukee, Wis.
National Paper Can Co., Milwaukee, Wis.
New York Label & Box Corp., New York, N. Y.
Paper Canister Co., Philadelphia, Pa.
Pictorial Paper Package Corp., Aurora, Ill.
R. C. Can Company, St. Louis, Mo.—319
Ritchie & Co., W. C., Chicago, Ill.—325
Rowell & Co., Inc., E. N., Batavia, N. Y.—327
Russell Box Co., Medford, Mass.
Seeley Tube & Box Co., Newark, N. J.
Sefton National Fibre Can Co., St. Louis, Mo.—331

CANS, TIN (Plain and Decorated)

Acme Can Co., Philadelphia, Pa.
American Can Co., New York, N. Y.
Burdick & Son, Inc., Albany, N. Y.—188
Chase Brass & Copper Co., Inc., Container & Closure Division, New York, N. Y.—201
Clark, Geo. V. Co., Inc., Long Island City, N. Y.—267
Clark Mfg. Co., J. L., Rockford, Ill.
Consolidated Fruit Jar Co., New Brunswick, N. J.
Continental Can Co., New York, N. Y.—Insert 168–169
Federal Tin Co., Baltimore, Md.
Giles Can Co., Chicago, Ill.
Heekin Can Co., Cincinnati, O.
Metal Package Corp., New York, N. Y.—252
National Can Co., Boston, Mass.
Robertson Steel & Iron Co., W. F., Springfield, O.
Tin Decorating Co. of Baltimore, The, Baltimore, Md.—339
Wilkes-Barre Can Co., Wilkes-Barre, Pa.

CANS, TRANSPARENT, ODORLESS

Clark, Geo. V. Co., Inc., Long Island City N. Y.—267
Hygienic Tube & Container Co., Newark, N. J.
Lusteroid Container Co., Inc., South Orange, N. J.—249

CAP LINERS

See Liners, Cap

CAP SEALING COMPOUNDS

Dewey & Almy Chemical Co., Cambridge, Mass.

CAPS, CROWN

Armstrong Cork & Insulation Co., Closure Division, Lancaster, Pa.—173
Bond Manufacturing Corp., Wilmington, Del.—174
Consolidated Cork Corp., Brooklyn, N. Y.
Crown Cap Manufacturing Co., Brooklyn, N. Y.
Crown Cork & Seal Co., Baltimore, Md.—184–185
Gutmann, Ferdinand & Co., Brooklyn, N. Y.
Hutchinson & Son, W. H., Chicago, Ill.
Illinois Cork Co., Chicago, Ill.
Mundet Cork Corp., Brooklyn, N. Y.—270
White Cap Co., Chicago, Ill.—Insert 340–341

CAPS (Metal), ALUMINUM, BRASS, TIN, (Bottle and Jar)

Aluminum Company of America, New Kensington, Pa.
American Aluminum Ware Co., Newark, N. J.
Anchor Cap & Closure Corp., Long Island City, N. Y.—258
Aridor Manufacturing Co., Chicago, Ill.
Armstrong Cork & Insulation Co., Cork Division, Lancaster, Pa.—173
Bernardin Bottle Cap Co., Evansville, Ind.
Brass Goods Manufacturing Co., Brooklyn, N. Y.
Bridgeport Metal Goods Mfg. Co., Bridgeport, Conn.
Chase Brass & Copper Co., Inc., Container & Closure Division, New York, N. Y.—201
Closure Service Co., Toledo, O.—193
Columbia Specialty Co., Baltimore, Md.
Crown Cork & Seal Co., Inc., Baltimore, Md.—184–185
Empire Metal Cap Co., Brooklyn, N. Y.
Gutmann & Co., Ferdinand, Brooklyn, N. Y.
Hazel Atlas Glass Co., Wheeling, West Va.
Majestic Metal Specialties, Inc., New York, N. Y.—251
National Seal Company, Brooklyn, N. Y.
Owens-Illinois Glass Co., Toledo, O.—194–196
Phoenix Metal Cap Co., Chicago, Ill.
Scovill Manufacturing Co., Waterbury, Conn.
Sterling, A. J., New York, N. Y.
Tin Decorating Co. of Baltimore, Baltimore, Md.—339
White Cap Co., Chicago, Ill.—Insert 340–341
Williams Sealing Corp., Decatur, Ill.
Wirz, Inc., A. H., Chester, Pa.—268

CAPS, MOLDED (Bottle, Jar & Tube)

American Insulator Corp., New Freedom, Pa.—168
American Record Corp., New York, N. Y.—171
Anchor Cap & Closure Corp., Long Island City, N. Y.—258
Aridor Co., Chicago, Ill.
Armstrong Cork & Insulation Co., Closure Division, Lancaster, Pa.—173
Auburn Button Works, Inc., Auburn, N. Y.—177
Bakelite Corp., New York, N. Y.—179
Boonton Molding Co., Boonton, N. J.
Chicago Molded Products Corp., Chicago, Ill.—190
Closure Service Co., Toledo, O.—193
Colt's Patent Fire Arms Mfg. Co., Hartford, Conn.—182
Durite Plastics, Division of Stokes & Smith Co., Philadelphia, Pa.—186–187
General Electric Co., Plastics Dept., River Works, West Lynn, Mass., Textolite, Cetec, Fabroil—259
General Industries Co., The, Elyria, O.—230
General Plastics, Inc., No. Tonawanda, N. Y.—264–265
Hyde, A. L., Grenloch, N. J.—241
Kurz-Kasch Co., The, Dayton, O.
Mack Molding Co., Little Falls, N. J.
Mundet Cork Corp., Brooklyn, N. Y.—270
Northern Industrial Chemical Co., Boston, Mass.
Norton Laboratories, Inc., Lockport, N. Y.
Owens-Illinois Glass Co., Toledo, O.—194–196
Plastic Molding Co., Sandy Hook, Conn.
Reilly Tar & Chemical Corp., Indianapolis, Ind.—320
Resinox Corp., New York, N. Y.—189
Reynolds Spring Co., Jackson, Mich.
Synthetic Plastics, Inc., New York, N. Y.
Tech-Art Plastics Co., New York, N. Y.—332
Toledo Synthetic Products, Inc., Toledo, O.—192
Waterbury Button Co., Waterbury, Conn.—344
Wheeling Stamping Co., Wheeling, West Va.—346

CAPS, PAPER

American Seal-Kap Corp., Long Island City, N. Y.—178
Cin-Made Corp., Cincinnati, O.
Cleveland Container Co., The, Cleveland, O.—198
Cross Paper Products Corp., New York, N. Y.—205
Indianapolis Paper Container Co., Indianapolis, Ind.

BUYERS' DIRECTORY of the PACKAGING INDUSTRIES

Lowe Paper Co., Ridgefield, N. J.—Insert Facing 177
New York Label & Box Corp., New York, N. Y.
R. C. Can Co., St. Louis, Mo.—319
Ritchie & Co., W. C., Chicago, Ill.—325
Sayford Co., Inc., Frank M., Brooklyn, N. Y.
Sefton National Fibre Can Co., St. Louis, Mo.—331

CAPS, VISCOSE, CELLULOSE

Armstrong Cork & Insulation Co., Cork Division, Lancaster, Pa.—173
Celon Co., Madison, Wis.
Du Pont Cellophane Co., Inc., Cellulose Caps Division, New York, N. Y.
Parke-Davis Co., Detroit, Mich.
Sillcocks-Miller Co., The, South Orange, N. J.
Sylvania Industrial Corp., New York, N. Y.—Insert 248–249

CAPSULES, CELLULOID, ODORLESS

Hygienic Tube & Container Co., Newark, N. J.
Lusteroid Container Co., Inc., South Orange, N. J.—249

CARTON LINERS

Bennington Wax Paper Co., Bennington, Vt.—Insert Facing 176
Central Waxed Paper Co., Chicago, Ill.
Du Pont Cellophane Co., New York, N. Y.
Hamersley Mfg. Co., Garfield, N. J.
Hartford City Paper Co., Hartford City, Ind.
Hazen Paper Co., Holyoke, Mass.—Insert 236–237
Henle Wax Paper Mfg. Co., Inc., The, New York, N. Y.
Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.—242
Marathon Paper Mills, Rothschild, Wis.
Menasha Products Co., Menasha, Wis.
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 336–337
Newark Paraffine & Parchment Paper Co., Newark, N. J.
Owens-Illinois Glass Co., Toledo, O.—194–196
Package Paper Co., Holyoke, Mass.—Insert 268–269
Paterson Parchment Paper Co., Bristol, Pa.—289
Pioneer Paper Stock Co., Chicago, Ill.—317
Reynolds Metals Co., Inc., New York, N. Y.—Insert Facing 285
Rhinelander Paper Co., Rhinelander, Wis.
Riegel Paper Corp., New York, N. Y.—Insert 324–325
Russell Box Co., Medford, Mass.
Sutherland Paper Co., Kalamazoo, Mich.
Sylvania Industrial Corp., New York, N. Y.—Insert 248–249
Traver Corp., Chicago, Ill.
Union Bag & Paper Corp., New York, N. Y.—262
West Carrollton Parchment Co., West Carrollton, O.
Westfield River Paper Co., Russell, Mass.

CARTONS

See Boxes, Folding and Display

CARTONS, PARAFFINED

Atlantic Carton Corp., Norwich, Conn.
Bloomer Bros. Co., Newark, Wayne County, New York
Butler Paper Products Co., Toledo, O.
Campbell Box & Tag Co., South Bend, Ind.—199
Chicago Carton Co., Chicago, Ill.
Consolidated Paper Co., Monroe, Mich.
Container Corp. of America, Chicago, Ill.—203
Fibreboard Products, Inc., San Francisco, Cal.
Fort Orange Paper Co., Castle-on-Hudson, N. Y.—266
Gair Co., Robert, New York, N. Y.
Gardner-Richardson Co., Middletown, O.
Gereke-Allen Co., St. Louis, Mo.
Hummel & Downing Co., Milwaukee, Wis.
Menasha Products Co., Menasha, Wis.
Michigan Carton Co., Battle Creek, Mich.
Morris Paper Mills, Chicago, Ill.
Nalco, Inc., New York, N. Y.—247
National Folding Box Co., New Haven, Conn.
Richardson-Taylor-Globe Corp., Cincinnati, O.—322
Russell Box Co., Medford, Mass.
Shuttleworth Carton Co., Inc., New York, N. Y.
Sutherland Paper Co., Kalamazoo, Mich.
Waldorf Paper Products Co., St. Paul, Minn.

CASE LINERS

Angier Corp., Framingham, Mass.
Brown Co., Portland, Me.
Central Paper Co., Muskegon, Mich.
Edgewater Paper Co., Menasha, Wis.
International Paper Co., New York, N. Y.
Pioneer Paper Stock Co., Chicago, Ill.—317
Rexford Paper Co., Milwaukee, Wis.
Reynolds Metals Co., Inc., New York, N. Y.—Insert Facing 285
Sisalkraft Co., Chicago, Ill.
Traver Corp., Chicago, Ill.
Union Bag & Paper Corp., New York, N. Y.—262

CASES, DISPLAY (Wood)

Arrow Mfg. Co., Inc., Hoboken, N. J.—169
Ornamental Wood Packaging Co., Chicago, Ill.—318
Peterson Bros., Chicago, Ill.—283
Pilliod Cabinet Co., Swanton, O.—284
Ruechert Mfg. Co., Providence, R. I.

CASES, MAILING (Fibre)

American Can Co., New York, N. Y.
Cambridge Paper Box Co., Cambridge, Mass.
Cin-Made Corp., Cincinnati, O.
Cleveland Container Co., Cleveland, O.—198
Mason Box Co., Attleboro Falls, Mass.—254–255
R. C. Can Co., St. Louis, Mo.—319
Ritchie & Co., W. C., Chicago, Ill.—325
Rowell Co., E. N., Batavia, N. Y.—327
Sefton National Fibre Can Co., St. Louis, Mo.—331

CASES, SAMPLE

Arrow Mfg. Co., Hoboken, N. J.—169
Bridgeport Bag & Jewelry Case Co., Bridgeport, Conn.
Buedingen Co., Inc., Ferdinand, Rochester, N. Y.—342
Cambridge Paper Box Co., Cambridge, Mass.
Dennison Mfg. Co., Framingham, Mass.—Insert 188–189
Hatch Co., C. F., Lowell, Mass.—233
Mason Box Co., Attleboro Falls, Mass.—254–255
Mele Mfg. Co., Inc., New York, N. Y.
National Metal Edge Box Co., Philadelphia, Pa.—271
Ornamental Wood Packaging Co., Chicago, Ill.—318
Pilliod Cabinet Co., Swanton, O.—284
Ritchie & Co., W. C., Chicago, Ill.—325
Ruechert Mfg. Co., Providence, R. I.
Smith Co., S. K., Chicago, Ill.—335
Sperling, E., New York, N. Y.
Star Case Co., New York, N. Y.
Voss Corp., Karl, Hoboken, N. J.—343
Warner Bros. Co., Bridgeport, Conn.—345

CELLULOID

Auburn Button Works, Inc., Auburn, N. Y.—177
Celluloid Corp., New York, N. Y.
Hygienic Tube & Container Co., Newark, N. J.
Lusteroid Container Co., Inc., South Orange, N. J.—249
Sillcocks-Miller Co., The, South Orange, N. J.—249

CELLULOSE, SHREDDED

Bennington Wax Paper Co., Bennington, Vt.—Insert Facing 176
Birge & Sons, M. H., Buffalo, N. Y.
Pioneer Paper Stock Co., Chicago, Ill.—317
Sylvania Industrial Corp., New York, N. Y.—Insert 248–249

CELLULOSE, TRANSPARENT (Converters and Printers)

Ben-Mont Fancy Papers, Inc., Bennington, Vt.—Insert Facing 176
Bennington Wax Paper Co., Bennington, Vt.—Insert Facing 176
Birge & Sons Co., M. H., Buffalo, N. Y.
Caton Printing Co., Kansas City, Mo.
Daniels Mfg. Co., Rhinelander, Wis.
Dennison Mfg. Co., Framingham, Mass.—Insert 188–189
Dobeckmun Co., The, Cleveland, O.—225
Forbes Litho. Mfg. Co., Boston, Mass.—180–181
Freydberg Bros., Inc., New York, N. Y.—244
Hazen Paper Co., Holyoke, Mass.—Insert 236–237
Humitube Mfg. Co., Peoria, Ill.
Liebs Co., Inc., L. A., New York, N. Y.
Marvellum Co., The, Holyoke, Mass.—Insert 282–283
Milprint Products Corp., Milwaukee, Wis.
Munson Bag Co., Cleveland, O.
Package Paper Co., Holyoke, Mass.—Insert 268–269
Royal Co., Thomas M., Philadelphia, Pa.—328–329
Shellmar Products Co., Chicago, Ill.—Insert 276–277
Traver Corp., Chicago, Ill.

CELLULOSE, TRANSPARENT (Moisture-Proof and Grease-Proof)

American Products Mfg. Co., New Orleans, La.
Celluloid Corp., New York, N. Y.

For information concerning equipment listed below, see catalog pages indicated by numbers appearing after advertisers' listings

BUYERS' DIRECTORY of the PACKAGING INDUSTRIES

Du Pont Cellophane Co., Inc., New York, N. Y.
Eastman Kodak Co., Rochester, N. Y.
Sylvania Industrial Corp., New York, N. Y. —Insert 248–249

CHIPBOARD

Butterfield-Barry Co., New York, N. Y.
Consolidated Paper Co., Monroe, Mich.
Container Corp. of America, Chicago, Ill.—203
Federal Paper Board Co., Inc., Bogota, N. J.
Fibreboard Products, Inc., San Francisco, Cal.
Gair Co., Robert, New York, N. Y.
Gardner-Richardson Co., Middletown, O.
Hinde & Dauch Paper Co., Sandusky, O.
Kieckhefer Container Corp., Milwaukee, Wis.
Mead Sales Co., Ltd., New York, N. Y.
National Folding Box Co., New Haven, Conn.
Riegel Paper Corp., New York, N. Y.—Insert 324–325
River Raisin Paper Co., Monroe, Mich.
Schmidt & Ault Paper Co., York, Pa.
Traver Corp., Chicago, Ill.
United Paperboard Co., New York, N. Y.

CLOTH, LACQUERED

Alaco Products, Inc., New York, N. Y.—Insert 166–167
Athol Mfg. Co., Athol, Mass.
Bakelite Corp., New York, N. Y.—179
Carpenter Co., L. E., Newark, N. J.
Dejonge & Co., Louis, New York, N. Y.—Insert 190–191
Du Pont Fabrikoid Co., Newburgh, N. Y.
Griffin, Campbell, Hayes, Walsh, Inc., New York, N. Y.
Hazen Paper Co., Holyoke, Mass.—Insert 236–237
Holliston Mills, Inc., The, Norwood, Mass.
Keratol Co., Newark, N. J.
Peerless Roll Leaf Co., Union City, N. J.
Permatex Fabrics, Inc., Jewett City, Conn.
Standard Textile Products Co., New York, N. Y.
Textileather Corp., Toledo, O.—337
Whiting Co., Inc., C. R., Hackensack, N. J.
Zapon Co., Hartford, Conn.

COLLAPSIBLE TUBES

See tubes, collapsible (aluminum, lead, tin and alloys)

COMPACTS, FANCY METAL CONTAINERS

Brass Goods Mfg. Co., Brooklyn, N. Y.
Bridgeport Metal Goods Mfg. Co., Bridgeport, Conn.
Chase Brass & Copper Co., Inc., Container & Closure Division, New York, N. Y.—201
Goertz Co., Inc., August, Newark, N. J.
Kolmar Laboratories, Newark, N. J.
Majestic Metal Specialties, Inc., New York, N. Y.—251
Sagamor Metal Goods Corp., New York, N. Y.
Scovill Mfg. Co., Waterbury, Conn.

CONTAINERS

See Various Bag and Box Headings

CONTAINERS, MOLDED PULP (Bottles, Jars, etc.)

Burt Co., Ltd., F. N., Buffalo, N. Y.—191
Hole-Tite Packing Corp., New York, N. Y.
Keyes Fibre Co., Inc., Waterville, Me.
Moulded Pulp Corp., Chicago, Ill.
Owens-Illinois Glass Co., Toledo, O.—194–196

CONTAINERS, MOLDED (Plastic)

See Boxes Molded (Plastic)

CONTAINERS, PAPER NESTING, WAXED AND UNWAXED

American Paper Goods Co., Kensington, Conn.—170
Boothby Fibre Can Co., Boston (Roxbury), Mass.
Individual Drinking Cup Co., Easton, Pa.
Iowa Fibre Box Co., Keokuk, Iowa
Lily Tulip Cup Corp., New York, N. Y.
Mono Service Co., Newark, N. J.
Russell Box Co., Medford, Mass.

CONTAINERS, REUSE (Molded)

See Boxes, Molded (Plastic)

CONTAINERS, SULPHITE CYLINDRICAL

Boothby Fibre Can Co., Boston (Roxbury), Mass.
Fibreboard Products, Inc., San Francisco, Cal.
Individual Drinking Cup Co., Easton, Pa.
Iowa Fibre Box Co., Keokuk, Iowa
Lily Tulip Cup Corp., New York, N. Y.
Menasha Products Co., Menasha, Wis.
Purity Paper Vessels Co., The, Baltimore, Md.
Ritchie & Co., W. C., Chicago, Ill.—325
Sealright Co., Fulton, N. Y.

CONTAINERS, SULPHITE NESTING

Boothby Fibre Can Co., Boston (Roxbury), Mass.
Iowa Fibre Box Co., Keokuk, Iowa
Lily Tulip Cup Corp., New York, N. Y.
Mono Service Co., Newark, N. J.
Russell Box Co., Medford, Mass.

CONTAINERS, TRANSPARENT, UNBREAKABLE, ODORLESS

Clark Co., Inc., Geo. V., Long Island City, N. Y.—267
Hygienic Tube & Container Co., Newark, N. J.
Lusteroid Container Corp., Inc., South Orange, N. J.—249
Sillcocks-Miller Co., The, South Orange, N. J.

CONVEYORS

Acme Steel Co., Chicago, Ill.—165
Alvey-Ferguson Co., Cincinnati, O.
Cambridge Wire Cloth Co., The, Cambridge, Md.
Chain Belt Co., Milwaukee, Wis.
Colton Co., Arthur, Detroit, Mich.—202
Dodge Mfg. Co., Mishawaka, Ind.
Elgin Mfg. Co., Elgin, Ill.
Gifford-Wood Co., Hudson, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Kiefer Machine Co., The Karl, Cincinnati, O.
Lamson Co., Syracuse, N. Y.
Link-Belt Co., Chicago, Ill.
Logan Co., Louisville, Ky.
Mathews Conveyor Co., Ellwood City, Pa.
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—280–281, 285–316
Sandvik Conveyor Mfg. Co., Inc., Newark, N. J.
Standard Conveyor Co., N. St. Paul, Minn
Stokes Machine Co., F. J., Philadelphia, Pa.—333
Toledo Precision Devices, Inc., Toledo, O.—338
Toledo Scale Co., Toledo, O.—338

CORK PAPER

Armstrong Cork & Insulation Co., Cork Division, Lancaster, Pa.—173

CORKS

American Cork Co., Boston, Mass.
Armstrong Cork & Insulation Co., Closure Division, Lancaster, Pa.—173
Cork Import Corp., New York, N. Y.
International Cork Co., Brooklyn, N. Y.
Mundet Cork Corp., Brooklyn, N. Y.—270
Truslow & Fulle, Brooklyn, N. Y.

CORKS, MOLDED TOPS

Mundet Cork Corp., Brooklyn, N. Y.—270

CORKS, WOOD TOP, EMBOSSED

Armstrong Cork & Insulation Co., Closure Division, Lancaster, Pa.—173

COUNTER DISPLAY

See Boxes, Folding Display Cartons
See Boxes, Molded Plastics
See Display Racks (Metal) also Metal Displays, Decorative
See Lithographers

CREPE WADDING

Kimberly-Clark Corp., Chicago, Ill.—234–235
Sweetnam, Inc., Geo. H., Cambridge, Mass.

DECALCOMANIA

American Decalcomania Co., Chicago, Ill.—167
Consolidated Lithographing Corp., Brooklyn, N. Y.
Meyercord Co., Chicago, Ill.
Palm, Fechteler & Co., New York, N. Y.—277

DIE CUTTING

Cameo Die Cutting & Engraving Co., New York, N. Y.—197
Dennison Mfg. Co., Framingham, Mass.—Insert 188–189
Foxon Co., Providence, R. I.—231
Krause, Inc., Richard M., New York, N. Y.—Insert 258–259
Stanley Mfg. Co., Dayton, O.
Wynekoop, Walker, Chicago, Ill.—323

DISPLAY CABINETS (Small, Wood)

Arrow Mfg. Co., Hoboken, N. J.—169
Ornamental Wood Packaging Co, Chicago, Ill.—318
Peterson Bros., Chicago, Ill.—283
Pilliod Cabinet Co., Swanton, O.—284
Star Case Co., New York, N. Y.

DISPLAY (COUNTER), GLASS & WOOD

Arrow Mfg. Co., Inc., Hoboken, N. J.—169

DISPLAY RACKS, METAL (Counter, Floor and Window)

Advertising Metal Display Co., Chicago and New York
American Can Co., New York, N. Y.

XUM

BUYERS' DIRECTORY of the PACKAGING INDUSTRIES

For information concerning equipment listed below, see catalog pages indicated by numbers appearing after advertisers' listings

Arrow Mfg. Co., Inc., Hoboken, N. J.—169
City Wire Frame Co., Chicago, Ill.
Continental Can Co., New York, N. Y.—Insert 168–169
Doehler Die-Casting Co., Toledo, O.
Kerr Wire Products Co., Chicago, Ill.
Majestic Metal Specialties, Inc., New York, N. Y.—251
Nelke Sign Mfg. Co., Inc., New York, N. Y.
New Jersey Zinc Co., New York, N. Y.—Insert 240–241
Sommer Bros. Appliance Co., Saginaw, Mich.
Tin Decorating Co. of Baltimore, The, Baltimore, Md.—339
Union Steel Products Co., Albion, Mich.
United Steel & Wire Co., Inc., Battle Creek, Mich.

DROPPERS, BOTTLE, MEDICINAL

Anchor Cap & Closure Corp., Long Island City, N. Y.—258
Owens-Illinois Glass Co., Toledo, O.—194–196
Pennsylvania Glass Products Co., Pittsburgh. Pa.
Spring Stopper Co., New York, N. Y.

DROPPERS, MEDICINAL, UNBREAKABLE, ODORLESS

Hygienic Tube & Container Co., Newark, N. J.
Lusteroid Container Co., Inc., South Orange, N. J.—249

DRUMS, FIBRE

Arvey Mfg. Co., Chicago, Ill.
Buffalo Carpenter Container Co., Inc., Buffalo, N. Y.
Carpenter Container Corp., Brooklyn, N. Y.
Champion Container Co., Philadelphia, Pa.
Container Co., The, Van Wert, O.
Emery Carpenter Container Co., Chicago, Ill.
Gardner-Richardson Co., Middletown, O.
Master Package Corp., Owen, Wis.
Morris Paper Mills, Chicago, Ill.
National Folding Box Co., New Haven, Conn.
Philadelphia Carpenter Container Co., Inc., Philadelphia, Pa.

ENVELOPES

See Various Bag Listings

ENVELOPE LININGS

See Papers, Fancy Tissue Wrapping

EXCELSIOR, PADS

Boston Excelsior Co., New York, N. Y.
Excelsior Wrapper Co., Chicago, Ill.
Pioneer Paper Stock Co., Chicago, Ill.—317
Quincy North Star Co., Quincy, Ill.
Selle & Co., H. W., Chicago, Ill.

EXCELSIOR PAPER

Bennington Wax Paper Co., Bennington, Vt.—Insert Facing 176
Crystal Tissue Co., Middletown, O.
Paterson Parchment Paper Co., Bristol, Pa.—282
Pioneer Paper Stock Co., Chicago, Ill.—317
Traver Corp., Chicago, Ill.

FOIL, ALUMINUM, TIN, LEAD AND COMPOSITION

Aluminum Co. of America, Pittsburgh, Pa.
Ben-Mont Fancy Papers, Inc., Bennington, Vt.—Insert Facing 176
Foil Products Corp., New York, N. Y.
Hampden Glazed Paper & Card Co., Holyoke, Mass.
Hirst Co., Adolphe, New York, N. Y.
Keller-Dorian Paper Co., New York, N. Y.—Insert 266–267
Kupfer Bros. Co., New York, N. Y.
Milprint Products Co., Milwaukee, Wis.
Pauli Corp., Karl, New York, N. Y.—273
Rex Paper Co., New York, N. Y.
Reynolds Metals Co., Inc., New York, N. Y.—Insert Facing 285

FOLDING BOXES

See Boxes, Folding and Display Cartons

GAUGES, PAPER

Cady Co., E. J., Chicago, Ill.
Federal Products Corp., Providence, R. I.
Foreign Paper Mills, Inc., New York, N. Y.
Perkins & Son, Inc., B. F., Holyoke, Mass.
Thwing Instrument Co., Philadelphia, Pa.
Toledo Precision Devices, Inc., Toledo, O.—338
Toledo Scale Co., Toledo, O.—338

GLASS, COLORED

Dura-Colors, Inc., Cleveland, O.—208
Maryland Glass Co., Baltimore, Md.—Insert Facing 209
Owens-Illinois Glass Co., Toledo, O.—194–196

GLASSES, MEDICINAL

Kimble Glass Co., Vineland, N. J.—243
Maryland Glass Co., Baltimore, Md.—Insert Facing 209
Owens-Illinois Glass Co., Toledo, O.—194–196
Pennsylvania Glass Products Co., Pittsburgh, Pa.

GLUES AND PASTES

See Adhesives

GOLD LEAF

See Roll Leaf

GUMMED TAPE (Cloth)

Artcote Papers, Inc., Irvington, N. J.—Insert 182–183
Central Paper Co., Menasha, Wis.
Chicago Gummed Tape Co., Chicago, Ill.
Crowell Corp., Yorklyn, Del.
Dejonge & Co., Louis, New York, N. Y.—Insert 190–191
Dennison Mfg. Co., Framingham, Mass.—Insert 188–189
Griffin, Campbell, Hayes, Walsh, Inc., New York, N. Y.
Gummed Products Co., The, Troy, O.—232
Gummed Tape & Devices Co., Brooklyn, N. Y.
Holyoke Paper Corp., New York, N. Y.
McLaurin-Jones Co., Brookfield, Mass.—Insert 262–263
Mid-States Gummed Paper Co., Chicago, Ill.
Minnesota Mining & Mfg. Co., St. Paul, Minn.
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 336–337
Paper Affiliates Co., Inc., New York, N. Y.
Queen City Paper Co., Cincinnati, O.
Rexford Paper Co., Milwaukee, Wis.
Reyburn Mfg. Co., Philadelphia, Pa.
Schulman Co., Louis, New York, N. Y.
Whiting Co., Inc., C. R., Hackensack, N. J.

GUMMED TAPE (Plain, Printed, Colored)

Better Packages, Shelton, Conn.
Central Paper Co., Menasha, Wis.
Chicago Gummed Tape Co., Chicago, Ill.
Crowell Corp., The, Yorklyn, Del.
Dennison Mfg. Co., Framingham, Mass.—Insert 188–189
Edgewater Paper Co., Menasha, Wis.
Ever Ready Label Corp., New York, N. Y.
Gummed Products Co., The, Troy, O.—232
Gummed Tape & Devices Co., Brooklyn, N. Y.
Holyoke Paper Corp., New York, N. Y.
Hudson Bag Co., Brooklyn, N. Y.
Knowlton Co., M. D., Rochester, N. Y.
Lambooy Label & Wrapper Co., Kalamazoo, Mich.
Matthias Paper Corp., Philadelphia, Pa.
McLaurin-Jones Co., Brookfield, Mass.—Insert 262–263
Metal Specialties Co., Chicago, Ill.
Mid-States Gummed Paper Co., Chicago, Ill.
Moore & Thompson Paper Co., Bellows Falls, Vt.
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 336–337
Paper Affiliates Co., Inc., New York, N. Y.
Paper Manufacturers Co., Inc., Philadelphia, Pa.
Rexford Paper Co., Milwaukee, Wis.
Standard Paper Co., Bellows Falls, Vt.
Tanglefoot Co., Grand Rapids, Mich.
Unique Printed Products Co., Terre Haute, Ind.
Union Gummed Products Co., Brooklyn, N. Y.
Western Waxed Paper Co., North Portland, Ore.
Wortendyke Mfg. Co., Richmond, Va.

GUMMED TAPE (Transparent Cellulose)

Gummed Tape & Devices Co., Brooklyn, N. Y.
Minnesota Mining & Mfg. Co., St. Paul, Minn.
Paper Affiliates Co., Inc., New York, N. Y.

INK, GLASSINE, TRANSPARENT CELLULOSE

Cray-Finne Co., Inc., New York, N. Y.
General Printing Ink Corp., New York, N. Y.
Huber, Inc., J. M., New York, N. Y.
International Printing Ink Corp., New York, N. Y.
Johnson, Inc., C. Eneu, Philadelphia, Pa.
Levey Co., Inc., Frederick H., New York, N. Y.
Morrill Co., Geo. H., Div. of Gen. Ptg. Ink, New York, N. Y.
Sinclair & Carroll Co., Inc., New York, N. Y.
Sinclair & Valentine, New York, N. Y.
Triangle Ink & Color Co., Inc., Brooklyn, N. Y.
Ullman Co., Sigmund, New York, N. Y.

INK, LITHOGRAPHING AND PRINTING

American Ptg. Ink Co., Div. Gen. Ptg. Ink, New York, N. Y.
California Ptg. Ink Co., San Francisco, Cal.
Coffee & Co., J. E., Union City, N. J.
Cray-Finne Co., Inc., New York, N. Y.

Davids Ink Co., Thaddeus, New York, N. Y.
General Printing Ink Corp., New York, N. Y.
Huber, Inc., J. M., New York, N. Y.
International Printing Ink Corp., New York, N. Y.
Johnson, Inc., C., Eneu, Philadelphia, Pa.
Levey Co., Inc., Frederick H., New York, N. Y.
Markem Machine Co., Keene, N. H.
Menasha Printing Ink Co., Menasha, Wis.
Morrill Co., Geo. H., Div. of Gen. Ptg. Ink, New York, N. Y.
Peerless Roll Leaf Co., Inc., Union City, N. J.
Sinclair & Carroll Co., Inc., New York, N. Y.
Sinclair & Valentine, New York, N. Y.
Standard Ptg. Ink Color Co., Inc., Brooklyn, N. Y.
Triangle Ink & Color Co., Brooklyn, N. Y.
Ullman Co., Sigmund, New York, N. Y.

INSERTS, PACKAGE

See Lithographers

JAR COVERINGS

See Caps, Metal and Molded

JARS, CELLULOID, ODORLESS

Hygienic Tube & Container Co., Newark, N. J.
Lusteroid Container Co., Inc., South Orange, N. J.—249

JARS, COLORED GLASS

Dura-Colors, Inc., Cleveland, O.—208
Owens-Illinois Glass Co., Toledo, O.—194–196

JARS, GLASS

See Bottles, Glass

JARS, MOLDED

See Boxes, Molded Plastics

JARS, OPAL

Brockway Machine Bottle Co., Brockway, Pa.
Carr-Lowrey Glass Co., Baltimore, Md.
Dura-Colors, Inc., Cleveland, O.—208
Hazel-Atlas Glass Co., Wheeling, W. Va.
Owens-Illinois Glass Co., Toledo, O.—194–196
Ruth Glass Co., New York, N. Y.
Wheaton, T. C., Millville, N. J.
Whitall Tatum Co., Millville, N. J.

JARS (Packers' Tumblers)

Brockway Machine Bottle Co., Brockway, Pa.
Capstan Glass Co., Connellsville, Pa.
Federal Glass Co., Columbus, O.
General Glass Co., Lancaster, O.
Hazel Atlas Glass Co., Wheeling, West Va.
Libbey Glass Mfg. Co., The, Toledo, O.
Owens-Illinois Glass Co., Toledo, O.—194–196
Tygart Valley Glass Co., Washington, Pa.

JARS, STONE

U. S. Stoneware Co., New York, N. Y.

LABELS AND SEALS (Flat and Embossed)

American Label Co., The, New York, N. Y.
Arkadia Label Corp., New York, N. Y.
Ben-Mont Fancy Papers, Inc., Bennington, Vt.—Insert Facing 176
Brett Litho. Co., Long Island City, N. Y.
Cambridge Paper Box Co., Cambridge, Mass.
Cameo Die Cutting & Engraving Co., New York, N. Y.—197
Consolidated Lithographing Corp., Brooklyn, N. Y.
Dennison Mfg. Co., Framingham, Mass.—Insert 188–189
Ever Ready Label Corp., New York, N. Y.
Fenton Label Co., Philadelphia, Pa.—Insert 200–201
Fitzhugh, Inc., Wm. W., Brooklyn, N. Y.
Forbes Litho. Mfg. Co., Boston, Mass.—180–181
Foxon Co., The, Providence, R. I.—231
Grand Rapids Label Co., Grand Rapids, Mich.
Green Co., Stephen, Philadelphia, Pa.
Hanograf Corp., New York, N. Y.
Horn, John, New York, N. Y.
Howell & Co., F. M., Elmira, N. Y.—Insert 232–233
Illinois Carton & Label Co., Chicago, Ill.
Kaumagraph Co., New York, N. Y.
Kehlmann Co., L., New York, N. Y.
Kittredge & Co., R. J., Chicago, Ill.
Krause, Inc., Richard M., New York, N. Y.—Insert 258–259
Lambooy Label & Wrapper Co., Kalamazoo, Mich.
Lord Baltimore Press, Baltimore, Md.
Manhattan Label Co., New York, N. Y.
Mason & Sons, F. E., Batavia, N. Y.
May Co., J. L., New York, N. Y.
Michigan Litho. Co., Grand Rapids, Mich.—269
Milwaukee Label & Seal Co., Milwaukee, Wis.
Muirson Label & Carton Co., Brooklyn, N. Y.
Nalco, Inc., New York, N. Y.—247
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 336–337
New York Label & Box Corp., New York, N. Y.
Outserts, Inc., New York, N. Y. (Combination Folder and Label)
Reyburn Mfg. Co., Philadelphia, Pa.
Reynolds Metals Co., Inc., New York, N. Y.—Insert Facing 285
Reynolds & Reynolds Co., Dayton, O.
Robinson Tag & Label Co., New York, N. Y.
St. Louis Sticker Co., St. Louis, Mo.
Schmitt & Co., Inc., Geo., Brooklyn, N. Y.
Shuman Co., Frank G., Chicago, Ill.
Stanley Mfg. Co., The, Dayton, O.
Stecher-Traung Litho. Corp., Rochester, N. Y.
Tablet & Ticket Co., The, Chicago, Ill.
Unique Printed Products Co., Inc., Terre Haute, Ind.
United States Printing & Litho. Corp., Cincinnati, O., and Baltimore, Md., and New York, N. Y.—Insert Facing 284
Waldorf Paper Products Co., St. Paul, Minn.
Weil Sons Litho. Co., David, Brooklyn, N. Y.
Western Label Co., Los Angeles, Cal.
Wheeler-Van Label Co., Grand Rapids, Mich.
Wood, Nathan & Virkus Co., New York, N. Y.—Insert Facing 316
Wynekoop Co., Walker, Chicago, Ill.—323

LABELS, MAILING AND SHIPPING

Atlas Label Co., Chicago, Ill.
Bartlett Label Co., Kalamazoo, Mich.
Cameo Die Cutting & Engraving Co., New York, N. Y.—197
Dennison Mfg. Co., Framingham, Mass.—Insert 188–189
Ever Ready Label Corp., New York, N. Y.
Fenton Label Co., Philadelphia, Pa.—Insert 200–201
Greene Co., Stephen, Philadelphia, Pa.
Horn, John, New York, N. Y.
Howell & Co., F. M., Elmira, N. Y.—Insert 232–233
Kalamazoo Label Co., Kalamazoo, Mich.
May Co., The, J. L., New York, N. Y.
Milwaukee Label & Seal Co., Milwaukee, Wis.
Nalco, Inc., New York, N. Y.—247
Pictorial Paper Package Corp., Aurora, Ill.
Rexford Paper Co., Milwaukee, Wis.
Reyburn Mfg. Co., Philadelphia, Pa.
St. Louis Sticker Co., St. Louis, Mo.
Salisbury Mfg. Co., Providence, R. I.
Shuman Co., Frank G., The, Chicago, Ill.
Smelzer & Co., Quentin R., Williamsville, N. Y.
Tablet & Ticket Co., The, Chicago, Ill.
Unique Printed Products Co., Inc., Terre Haute, Ind.
Wadill Printing & Litho. Co., Danville, Va.
Wheeler-Van Label Co., Grand Rapids, Mich.

LABELS, METAL

Arkadia Label Corp., New York, N. Y.
Attleboro Printing & Embossing Co., Attleboro, Mass.
Cameo Die Cutting & Engraving Co., New York, N. Y.—197
Dennison Mfg. Co., Framingham, Mass.—Insert 188–189
Foxon Co., The, Providence, R. I.—231
Krause, Inc., Richard M., New York, N. Y.—Insert 258–259
Mason & Sons, F. E., Batavia, N. Y.
Milwaukee Label & Seal Co., Milwaukee, Wis.
Nalco, Inc., New York, N. Y.—247
Reyburn Mfg. Co., Philadelphia, Pa.
Reynolds Metals Co., Inc., New York, N. Y.—Insert Facing 285
Shuman Co., Frank G., Chicago, Ill.
Stanley Mfg. Co., Dayton, O.
Tablet & Ticket Co., The, Chicago, Ill.
Wynekoop Co., Walker, Chicago, Ill.—323

LABELS, TRANSPARENT

Palm, Fechteler & Co., New York, N. Y.—277

LACE PAPER

American Lace Paper Co., Milwaukee, Wis.
Marathon Paper Mills Co., Rothschild, Wis.
Milwaukee Lace Paper Co., Milwaukee, Wis.
Sayford Co., Inc., Frank M., Brooklyn, N. Y.
U. S. Lace Paper Works, Brooklyn, N. Y.

LAMINATING, CUSTOM

Diana Mfg. Co., Green Bay, Wis.
Dobeckmun Co., The, Cleveland, O.—225
Frank Associates, Inc., New York, N. Y.
Ralston & Co., W., Inc., Niagara Falls, N. Y.
Walser Mfg. Co., Inc., Clifton, N. J.

BUYERS' DIRECTORY of the PACKAGING INDUSTRIES

LEATHER (Imitation)

Carpenter & Co., Inc., L. E., Newark, N. J.
Container Corp. of America, Chicago, Ill.—203
Dejonge & Co., Louis, New York, N. Y.—Insert 190–191
Dupont Fabrikoid Co., Newburgh, N. Y.
Griffin, Campbell, Hayes, Walsh, Inc., New York, N. Y.
Hazen Paper Co., Holyoke, Mass.—Insert 236–237
Holliston Mills, Inc., The, Norwood, Mass.
Keratol Co., The, Newark, N. J.
Paper Affiliates Co., Inc., New York, N. Y.
Peerless Roll Leaf Co., Inc., Union City, N. J.
Permatex Fabrics Co., The, Jewett City, Conn.
Premoid Co., Springfield, Mass.
Standard Textile Products Co., New York, N. Y.
Textileather Corp., Toledo, O.—337
United Mfg. Co., The, Springfield, Mass.—Insert 224–225
Whiting Co., Inc., C. R., Hackensack, N. J.
Zapon Co., Stamford, Conn.

LINERS (Box, Barrel and Bag)

Angier Corp., Framingham, Mass.
Arkell Safety Bag Co., New York, N. Y.
Bemis Bros. Bag Co., St. Louis, Mo.
Container Corp. of America, Chicago, Ill.—203
Edgewater Paper Co., Menasha, Wis.
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—266
Gair Co., Robert, New York, N. Y.
Hamersley Mfg. Co., Garfield, N. J.
Hinde & Dauch Paper Co., Sandusky, O.
International Paper Co., New York, N. Y.
Kimberly-Clark Corp., Chicago, Ill.—234–235
Paper Service Co., The, Lockland, O.
Paterson Parchment Paper Co., Bristol, Pa.—282
Pioneer Paper Stock Co., Chicago, Ill.—317
Rexford Paper Co., Milwaukee, Wis.
Reynolds Metals Co., Inc., New York, N. Y.—Insert Facing 285
Rhinelander Paper Co., Rhinelander, Wis.
Riegel Paper Corp., New York, N. Y.—Insert 324–325
Safepack Mills, Millis, Mass.
Sweetnam, Inc., Geo. H., Cambridge, Mass.
Traver Corp., Chicago, Ill.
Union Bag & Paper Corp., New York, N. Y.—262

LINERS, CAP

Anchor Cap & Closure Co., Long Island City, N. Y.—258
Armstrong Cork Co., Closure Division, Lancaster, Pa.—173
Bond Mfg. Corp., Wilmington, Del.—174
General Felt Products, Inc., Brooklyn, N. Y.
Irvington Varnish & Insulator Co., Irvington, N. J.
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Rode & Brand, Inc., New York, N. Y.
Sale Litho. Co., Buffalo, N. Y.
Schmidt Litho. Co., Theo. A., Chicago, Ill.
Schmidt Litho. Co., San Francisco, Cal.
Schmitt & Co., Inc., Geo., Brooklyn, N. Y.
Schultz Litho. Co., A. C., Milwaukee, Wis.
Snyder & Black, Inc., New York, N. Y.
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Cranmer Co., Harry M., Boston, Mass.
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Hughes & Hoffman, New York, N. Y.—Insert 228–229
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Kupfer Bros. Co., New York, N. Y.
Matthias Paper Corp., Philadelphia, Pa.
Metz Paper Co., Pawtucket, R. I.
Paper Affiliates Co., Inc., New York, N. Y.
Queen City Paper Co., Cincinnati, O.
Schulman Co., Louis, New York, N. Y.
Springfield Glazed Paper Co., Springfield, Mass.—Insert Facing 317
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Whiting Co., Inc., C. R., Hackensack, N. J.
Whiting-Patterson Co., Inc., New York, N. Y.
Williams & Co., Inc., Chas. W., New York, N. Y.
Wyomissing Glazed Paper Co., Reading, Pa.

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Kupfer Bros. Co., New York, N. Y.
Matthias Paper Corp., Philadelphia, Pa.
McDowell Paper Mills, Philadelphia, Pa.
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Arkadia Paper Products Corp., New York, N. Y.

XUM

Cameo Die Cutting & Engraving Co., New York, N. Y.—197
Dennison Mfg. Co., Framingham, Mass.—Insert 188–189
Foxon Co., The, Providence, R. I.—231
Grand Rapids Label Co., Grand Rapids, Mich.
Horn, John M., New York, N. Y.
Kaumagraph Co., New York, N. Y.
Krause, Inc., Richard M., New York, N. Y.—Insert 258–259
Mason & Sons, F. E., Batavia, N. Y.
Milwaukee Label & Seal Co., Milwaukee, Wis.
Nalco, Inc., New York, N. Y.—247
Palm-Fechteler Co., New York, N. Y.—277
Reyburn Mfg. Co., Philadelphia, Pa.
Reynolds Metals Co., Inc., New York, N. Y.—Insert Facing 285
St. Louis Sticker Co., St. Louis, Mo.
Shuman Co., Frank G., Chicago, Ill.
Stanley Mfg. Co., Dayton, O.
Tablet and Ticket Co., The, Chicago, Ill.
Unique Printed Products Co., Terre Haute, Ind.
Wheeler-Van Label Co., Grand Rapids, Mich.
Wynekoop Co., Walker, Chicago, Ill.—323

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Mechling Bros. Chemical Co., Camden, N. J.
Philadelphia Quartz Co., Philadelphia, Pa.
Standard Silicate Co., Cincinnati, O.

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Ritchie Co., W. C., Chicago, Ill.—325
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American Aluminum Ware Co., Newark, N. J.
Armstrong Cork & Insulation Co., Closure Division, Lancaster, Pa.—173
Art Tube Co., Irvington, N. J.
Bridgeport Metal Goods Mfg. Co., Bridgeport, Conn.
Chase Brass & Copper Co., Inc., Container & Closure Division, New York, N. Y.—201
Colt's Patent Fire Arms Mfg. Co., Hartford, Conn., 182
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Imperial Metal Mfg. Corp., Long Island City, N. Y.
Peerless Tube Co., Bloomfield, N. J.
R. C. Can Co., St. Louis, Mo.—319
Ritchie & Co., W. C., Chicago, Ill.—325
Scovill Manufacturing Co., Waterbury, Conn.
Sun Tube Corp., Hillside, H. J.—334
White Metal Mfg. Co., Hoboken, N. J.
Wirz, Inc., A. H., Chester, Pa.—268

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Bostitch Sales Co., E. Greenwich, R. I.—260–261
Crofoot Co., J. B., Mount Prospect, Ill.
Hotchkiss Sales Co., Norwalk, Conn.
Parrot Speed Fastener Corp., New York, N. Y.

STENCIL BOARD AND BRUSHES

Botts Mfg. Co., Brooklyn, N. Y.
Bradley Stencil Machine Co., St. Louis, Mo.
Diagraph Stencil Machine Corp., St. Louis, Mo.
Garvey Fountain & Ink Co., St. Louis, Mo.
Ideal Stencil Machine Co., Belleville, Ill.
Marsh Stencil Machine Co., Belleville, Ill.
Shaw Co., The E. C., Cincinnati, O.

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Mundet Cork Corp., Brooklyn, N. Y.—270
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Spring Stopper Co., New York, N. Y.
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Gerard Co., Inc., Chicago, Ill.
Signode Steel Strapping Co., Chicago, Ill.
Stanley Works, New Britain, Conn.
Tennant & Sons, C. W., New York, N. Y.

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Chicago Printed String Co., Chicago, Ill.
Freydberg Bros., New York, N. Y.—244
Milwaukee Printed String Co., Milwaukee, Wis.—275
National Tinsel Mfg. Co., Manitowoc, Wis.

SYNTHETIC PLASTICS IN PACKAGING

(See Molding Powders)

TAGS, MERCHANDISE SHIPPING

Cambridge Paper Box Co., Cambridge, Mass.
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Dennison Mfg. Co., Framingham, Mass.—Insert 188–189
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International Tag Co., Chicago, Ill.
Little Co., John W., Pawtucket, R. I.
May Co., The J. L., New York, N. Y.
Milwaukee Printing Co., Milwaukee, Wis.
Reyburn Mfg. Co., Philadelphia, Pa.
Whitney Tag Co., Inc., New York, N. Y.

TAPE, ALL TYPES

(See Gummed Tape)

TAPE, ADVERTISING (Ribbon)

See Ribbons (Decorative Tying)

TAPE, COTTON

Chicago Printed String Co., Chicago, Ill.
Dennison Mfg. Co., Framingham, Mass.—Insert 188–189
Milwaukee Printed String Co., Milwaukee, Wis.—275

TESTERS, PAPER AND BOARD

Cady & Co., E. J., Chicago, Ill.
Foreign Paper Mills, Inc., New York, N. Y.
Perkins & Son, Inc., B. F., Holyoke, Mass.
Thwing Instrument Co., Philadelphia, Pa.

TUBES, COLLAPSIBLE (Aluminum, Lead, Tin and Alloys)

Aluminum Co. of America, Pittsburgh, Pa.
Art Tube Co., Irvington, N. J.
Atlantic Mfg. Co., Newark, N. J.
Bond Mfg. Corp., Wilmington, Del.—174
National Collapsible Tube Co., Providence, R. I.
New England Collapsible Tube Co., New London, Conn., and Chicago, Ill.
Peerless Tube Co., Bloomfield, N. J.
Pennsylvania Collapsible Tube Co., Williamsport, Pa.
Standard Specialty & Tube Co., New Brighton, Pa.—336
Sun Tube Corp., Hillside, N. J.—334
Turner Tube Co., New Brunswick, N. J.
Victor Metal Products Corp., Brooklyn, N. Y.
Wheeling Stamping Co., Wheeling, W. Va.—346
White Metal Mfg. Co., Hoboken, N. J.
Wirz, Inc., A. H., Chester, Pa.—268

TUBES, COLLAPSIBLE, TRANSPARENT, ODORLESS

Hygienic Tube & Container Co., Newark, N. J.
Lusteroid Container Co., Inc., South Orange, N. J.—249

TUBES, FIBRE (Mailing, etc.)

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Champion Container Co., Inc., Philadelphia, Pa.
Chicago Paper Tube & Can Co., Chicago, Ill.
Cin-Made Corp., Cincinnati, O.
Cleveland Container Co., The, Cleveland, O.—198
Cross Paper Products Corp., New York, N. Y.—205
Fibreboard Products, Inc., San Francisco, Cal.
Gates Paper Co., Ltd., Los Angeles, Cal.
Improved Mailing Case Co., New York, N. Y.
Indianapolis Paper Container Co., Indianapolis, Ind.

XUM

BUYERS' DIRECTORY of the PACKAGING INDUSTRIES

For information concerning equipment listed below, see catalog pages indicated by numbers appearing after advertisers' listings

International Mailing Tube & Wrapper Co., Brooklyn, N. Y.
Iowa Fibre Box Co., Keokuk, Iowa
Mason Box Co., The, Attleboro Falls, Mass.—254–255
National Paper Can Co., Milwaukee, Wis.
New York Label & Box Corp., New York, N. Y.
Paper Canister Co., Inc., Fernwood, Delaware County, Pa.
R. C. Can Company, St. Louis, Mo.—319
Ritchie & Co., W. C., Chicago, Ill.—325
Seeley Tube and Box Co., Newark, N. J.
Sefton National Fibre Can Co., St. Louis, Mo.—331
Shoup-Owens, Inc., Hoboken, N. J.
Stecker Paper Box Co., Detroit, Mich.

TUBING, GLASS

Kimble Glass Co., Vineland, N. J.—243

VELVETS

Crompton-Richmond Co., Inc., New York, N. Y.

VIALS, GLASS

Kimble Glass Co., Vineland, N. J.—243
Pennsylvania Glass Products Co., Pittsburgh, Pa.

VIALS, UNBREAKABLE, ODORLESS

Hygienic Tube & Container Co., Newark, N. J.
Lusteroid Container Co., Inc., South Orange, N. J.—249
Sillcocks-Miller Co., The, South Orange, N. J.

WINDOW DISPLAYS

See Lithographers, Box and Carton Manufacturers, also Metal Displays, Decorative

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Bennington Wax Paper Co., Bennington, Vt.—Insert Facing 176
Dennison Mfg. Co., Framingham, Mass.—Insert 188–189
Foil Products Corp., New York, N. Y.
Hy-Sil Mfg. Co., Revere, Mass.
Kimberly-Clark Corp., Neenah, Wis.—234–235
Minnesota Mining & Mfg. Co., St. Paul, Minn.
Nalco, Inc., New York, N. Y.—247
National Tinsel Mfg. Co., Manitowoc, Wis.
Reyburn Mfg. Co., Philadelphia, Pa.
Reynolds Metals Co., Inc., New York, N. Y.—Insert Facing 285

WIRE, REINFORCEMENT

Acme Steel Co., Chicago, Ill.—165
Chicago Steel & Wire Co., Chicago, Ill.
Gerrard Co., Inc., Chicago, Ill.
Seneca Wire & Mfg. Co., Fostoria, O.
Signode Steel Strapping Co., Chicago, Ill.
Stanley Works, New Britain, Conn.

WIRE, STAPLING

Acme Staple Co., Camden, N. J.—166
Acme Steel Co., Chicago, Ill.—165
Bostitch Sales Co., E. Greenwich, R. I.—260–261
Crofoot Co., T. B., Mt. Prospect, Ill.
Dexter Folder Co., New York, N. Y.—209–224
Ideal Stitcher & Mfg. Co., Racine, Wis.
Prentiss Co., Geo. W., Holyoke, Mass.
Saranac Machine Co., Benton Harbor, Mich.—325
Seneca Wire & Mfg. Co., Fostoria, O.
Wilson Steel Products Co., Chicago, Ill.

WIRE, STITCHING

Acme Steel Co., Chicago, Ill.—165
Bostitch Sales Co., E. Greenwich, R. I.—260–261
Chicago Steel and Wire Co., Chicago, Ill.
Dexter Folder Co., New York, N. Y.—209–224
Ideal Stitcher & Mfg. Co., Racine, Wis.
Morrison Co., Inc., J. L., Niagara Falls, N. Y.
Prentiss, Geo. W., Holyoke, Mass.
Saranac Machine Co., Benton Harbor, Mich.—324
Seneca Wire & Mfg. Co., Fostoria, O.
Wilson Steel Products Co., Chicago, Ill.

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Gair Co., Robert, New York, N. Y.
Gaylord Co., Robert, St. Louis, Mo.
Hinde & Dauch Paper Co., Sandusky, O.
Iowa Fibre Box Co., Keokuk, Iowa
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Owens-Illinois Glass Co., Toledo, O.—194–196
River Raisin Paper Co., Monroe, Mich.

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Foil Products Corp., New York, N. Y.
Johnston Tin Foil & Metal Co., St. Louis, Mo.
Keller-Dorian Paper Co., New York, N. Y.—Insert 266–267
Reynolds Metals Co., Inc., New York, N. Y.—Insert Facing 285

WRAPPERS, PRINTED GLASSINE

American Tissue Mills, Holyoke, Mass.
Bendix Paper Co., New York, N. Y.
Ben-Mont Fancy Papers, Inc., Bennington, Vt.—Insert Facing 176
Bennington Wax Paper Co., Bennington, Vt.—Insert Facing 176
Central Waxed Paper Co., Chicago, Ill.
Deerfield Glassine Co., Monroe Bridge, Mass.
Denninson Mfg. Co., Framingham, Mass.—Insert 188–189
Hamersley Mfg. Co., Garfield, N. J.
Hartford City Paper Co., Hartford City, Ind.
Hazen Paper Co., Holyoke, Mass.—Insert 236–237
Henle Wax Paper Mfg. Co., Inc., The, New York, N. Y.
Holyoke Paper Corp., New York, N. Y.
Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.—242
Liebs Co., L. A., New York, N. Y.
Lord Baltimore Press, Baltimore, Md.
Menasha Products Co., Menasha, Wis.
Milprint Products Corp., Milwaukee, Wis.
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 336–337
Package Paper Co., Holyoke, Mass.—Insert 268–269
Paterson Parchment Paper Co., Bristol, Pa.—282
Pioneer Paper Stock Co., Chicago, Ill.—317
Riegel Paper Corp., New York, N. Y.—Insert 324–325
Shellmar Products Co., Chicago, Ill.—Insert 276–277
Traver Corp., Chicago, Ill.
Westfield River Paper Co., Russell, Mass.

WRAPPERS, TRANSPARENT CELLULOSE

See Cellulose, Transparent; Converters and Printers

WRAPPERS, WAXED PAPER AND PARCHMENT

American Tissue Mills, Holyoke, Mass.
Bennington Wax Paper Co., Bennington, Vt.—Insert Facing 176
Brown Co., Portland, Me.
Central Waxed Paper Co., Chicago, Ill.
Continental Paper & Bag Corp., New York, N. Y.—Insert Facing 208
Hamersley Mfg. Co., Garfield, N. J.
Henle Wax Paper Mfg. Co., Inc., New York, N. Y.
Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.—242
Marathon Paper Mills, Rothschild, Wis.
Menasha Products Co., Menasha, Wis.
Milprint Products Corp., Milwaukee, Wis.
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 336–337
Newark Paraffine & Parchment Paper Co., Newark, N. J.
Ohio Wax Paper Co., Columbus, O.
Otsego Waxed Paper Co., Otsego, Mich.
Package Paper Co., Holyoke, Mass.—Insert 268–269
Paterson Parchment Paper Co., Bristol, Pa.—282
Pioneer Paper Stock Co., Chicago, Ill.—317
Rap-In-Wax Paper Co., St. Paul, Minn.
Riegel Paper Corp., New York, N. Y.—Insert 324–325
Robertson Paper Co., Inc., Bellows Falls, Vt.
Shamut Waxed Paper Co., Holliston, Mass.
Traver Corp., Chicago, Ill.
Waterproof Paper & Board Co., Cincinnati, O.
West Carrollton Parchment Co., West Carrollton, O.

ZINC

New Jersey Zinc Co., New York, N. Y.—Insert 240–241

XUM

ACME STEEL COMPANY

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219--36th St., BROOKLYN
114 Railroad Ave., So., SEATTLE

603 Stewart Ave., S. W., ATLANTA
202 Davis St., SAN FRANCISO

Manufacturers of Galvanized Stitching Wire, Steelstrap and Strapping Equipment, Stainless and Galvanized Steel Conveyor Belts

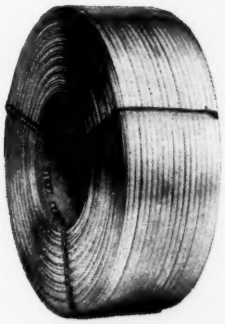


Doc. *Steelstrap*

ACME *SilverStitch*

REG U.S. PAT OFF.

STITCHING WIRE FOR FIBRE BOXES

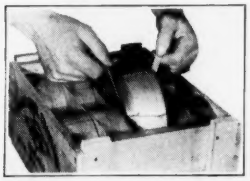


One-Piece
5 and 10-pound coils

Silverstitch is the finest on the market—is more widely used than any other. It offers three important advantages:

1. Unvarying accuracy in temper, width and thickness.
2. Continuous length, full weight 5 and 10-pound coils.
3. Galvanized finish that gives greatest resistance to rust.

Stainless. Stitched with galvanized, rust-resisting Silverstitch, boxes remain clean and free from rust stains. Particularly valuable for soap, food, candy boxes, etc. Liners can be eliminated.



Tape makes removal of first coil easy

Improved Packing. Silverstitch is now shipped in a new and improved package. The lid on the box is in one piece—is not nailed down, but strapped on, providing new ease of opening when strap is cut. A "lifting tape" removes the first coil from the snugly fitting pack. A fibre disc keeps each coil in perfect shape and prevents tangling.



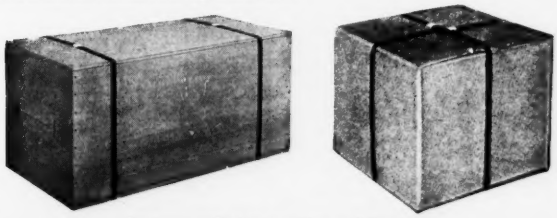
Stainless stitching with Silverstitch

Silverstitch is generally preferred in the 10-lb. coil, because it cuts in half the time spent in coil changing, and machine threading. Acme Silverstitch is made in the following sizes: .103 x .014, .103 x .017, .103 x .020, .103 x .023, .060 x .024, and .060 x .0205.

Send today for free 5-lb. coil. Test this superior stitching wire in your own plant, without obligation.

Acme Steelstrap PACKAGE REINFORCING

Fast, efficient and economical, Acme Steelstrap provides increased shipping protection for both wood and fibre boxes. The Acme Seal makes the strongest joint ever secured through the use of a mechanical hand sealing machine.



Steelstrap applied to wood box and fibre box



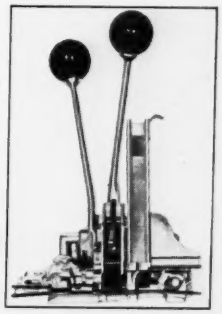
Sealed Joint of Acme Steelstrap

The extra reinforcement, provided with Steelstrap, often permits lighter containers and greater economy in both package and shipping costs.

Bundling Small Packages. In numerous cases, manufacturers economize by using Steelstrap to tie small packages into one unit—gaining a more advantageous express classification. Write today for Doc Steelstrap's new STRAP-BOOK—telling many ways to cure costly shipping ills.



5 Fibre Boxes Bundled with Steelstrap



THE NEW ACME *Steelstrapper*

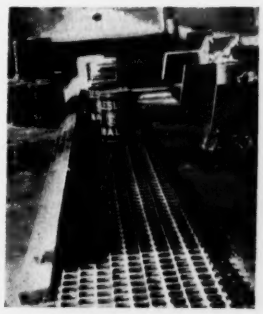
THE HANDIEST BOX STRAPPING TOOL MADE

For easier, more efficient reinforcing of wood and fibre boxes. The Steelstrapper is a one-unit tool—the only tool with Automatic Seal Feed—100 seals in the magazine. *One, two* . . . and the job is done—faster and better than ever before. Perfectly aligned strap is automatically insured. Write today for new literature describing this finest of all strapping tools.

ACME STEEL-MESH CONVEYORS

(In Stainless Steel or Electro-Galvanized Finish)

Acme Steel-Mesh Conveyor Belting is especially adapted for conveying products through drying ovens; for sorting, assembling, washing, and many other manufacturing operations. The open mesh allows free circulation of air, heat, water, and steam. Products may be washed, cooled, sprayed, etc.



Leslie Salt cartons, after labeling, are taken through the dryer on an Acme Steel-Mesh Conveyor Belt. Warm air blown up through the meshes quickly dries the labels before moisture can penetrate the cartons

Acme Conveyor Belting is economical and is known for its long life under gruelling conditions. Worn sections are easily replaced. It may be lenghtened or shortened by a simple operation. Not affected by alternate drying and wetting.

Acme Belting may be obtained in any length, and in widths of approximately 4 to 60 inches in multiples of 2 inches. Write for illustrated data.

XUM



If YOU

GLUE
RIVET
SEW
TACK
CLIP
PASTE

or
fasten
in any other way
then a

PORTABLE
ACME
STAPLER

will

SAVE YOU MONEY

●

CARDING





CARTONS



TOP



BOTTOM



SIDES

Thrift . .

. . . IN PACKAGING

No matter whether your packaging requirements are Carding or Cartoning, an ACME STAPLER answers your needs economically, with greater speed and protection.

CARDING

In Carding, the ACME way is the clean, neat, speedy way to attach your merchandise to display cards or stands. The flexibility of ACME Carding equipment allows for quick changes and tremendous production. The above illustration is one of many ACME installations. Here is a battery of ACME Staplers used by an international corporation producing 2 million packages a month.

CARTONS

In Cartoning, ACME STAPLERS do the entire assembling job. Top, Bottom or Side Stapling is done with ACME MACHINES quickly, economically and neatly—nothing to mar the appearance of valuable advertising messages on the outside of the carton. Staples provide the utmost strength, too.

The low cost and PORTABILITY of ACME STAPLERS are recognized by national concerns as a means to greater production, at no increase in costs!

When you see ACME STAPLERS—you see thrifty plant management. Bring all your Stapling problems to ACME—No obligation on your part.

ACME STAPLE CO.

1647 HADDON AVE., CAMDEN, N. J.

"Solving Stapling Problems for 40 Years"

XUM

Gene
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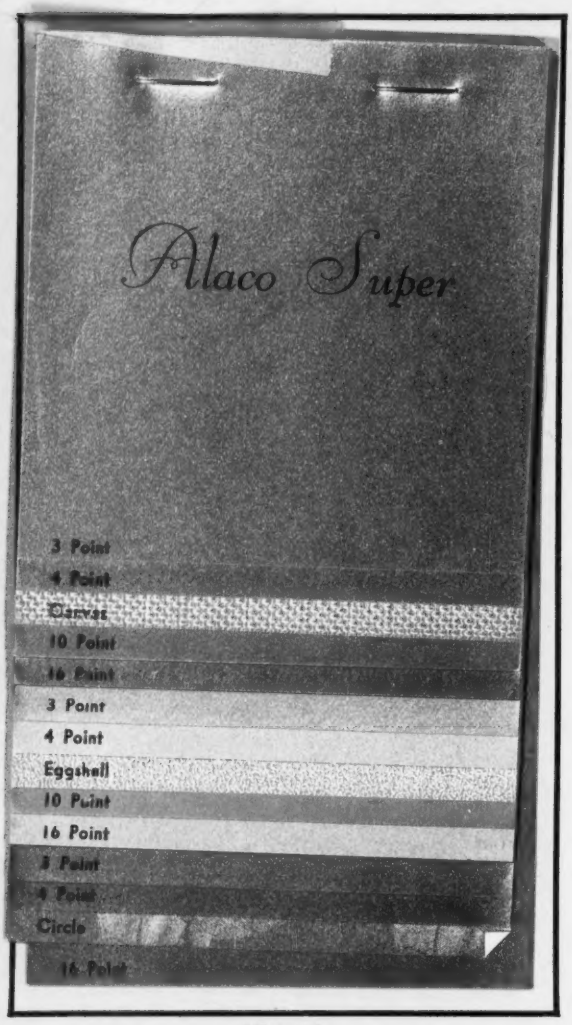
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PRINT COPPER

XUM

ALACO SUPER GOLD-SILVER-COPPER

Brilliant, uniform in finish, non-tarnishing, rub-proof and waterproof, receptive to ink, and with excellent embossing qualities.



Lift swatch

Made in weights and qualities suitable for:

- Labels
- Box Coverings
- Edging
- Platforms
- Displays
- Folding Cartons
- Folders
- Menus
- Envelope Linings
- Direct Mail Pieces

These papers are available in a wide range of embossings.

Sample Books and Sheets on Request.

With a background of 25 years of experience in Lacquer Coating which Atlantic Chemical Company enjoys and with the 60 years of activity of the Springfield Glazed Paper Company in the Fancy Paper Industry, we offer ALACO SUPER.

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PERMANENT DECALCOMANIA *Identification*



FOR YOUR PRODUCT

For transparent or opaque identification on bottles—or on any other product.



FOR YOUR PACKAGE

Permanent nameplate—or decoration—on metal, glass, bakelite or any plastic product.



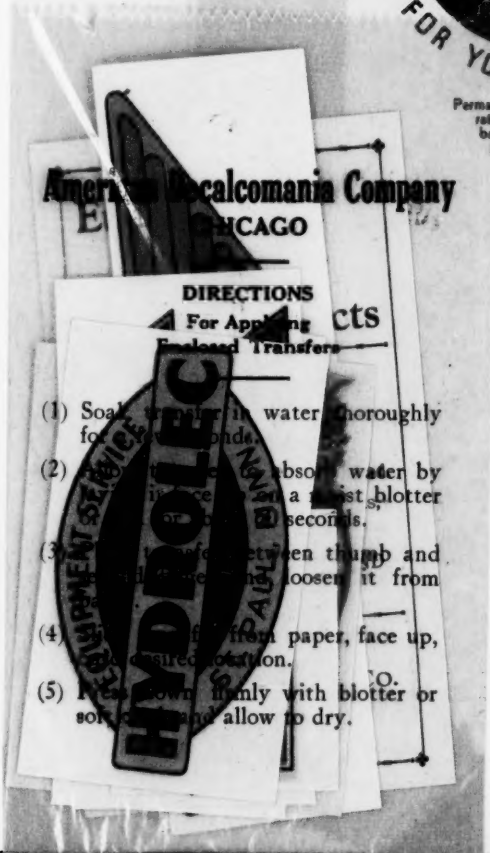
FOR YOUR DEALERS

Permanent "Authorized Dealer" signs and top of the window valances.



FOR DELIVERY EQUIPMENT

Uniform, low cost, identification of your own, your distributor's and your dealers' delivery equipment.



WHETHER your product is small or large, whether it is perfume or an electric refrigerator, it will pay you to investigate our permanent Decalcomania Identification service.

AMERICAN Decalcomanias make perfect and permanent nameplates or decorations for products and packages of metal, glass, wood, bakelite and other materials. AMERICAN Decalcomanias (and AMERICAN Etched Metal Nameplates) are being used on thousands of products. Our staff of experienced designers can help you. Sketches and quotations will be submitted without obligation.

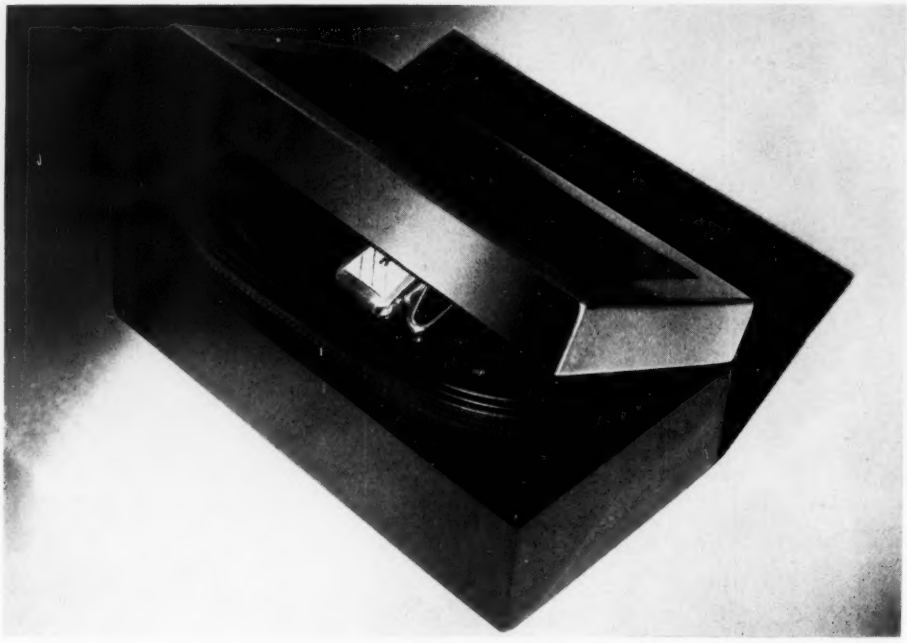
It will pay you handsomely to identify your dealers and delivery equipment by using AMERICAN Decalcomanias, the lowest cost advertising you can buy. Get the benefit of "name continuity" on product, on package, on retailers' windows, on delivery equipment. Write for sketches and quotations.

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4326 5TH AVE., CHICAGO, ILLINOIS
Representatives in 34 Principal Cities

XUM



DOUBLE USE—DOUBLE SALES



CONSUMERS are quick to appreciate the extra value they obtain when they purchase a product packaged in a re-use moulded container. And the sales of products packaged in this appealing manner far out-strip those of the same products put up in ordinary boxes. This has been proven time and time again by many alert manufacturers. We can cite many interesting cases in substantiation of this statement.

Without obligation, we will gladly study your product and inform you whether it is adaptable to this sales-encouraging type of package.

AMERICAN INSULATOR CORPORATION
NEW FREEDOM, PA.



Specialists in

DESIGN *and* COLOR LITHOGRAPHY

for the creation of better packages

When you bring a package problem to Continental you benefit, first of all, from the knowledge and experience gained thru over a quarter-century of helping solve the package problems of many diversified businesses. You have available cans that are widely adaptable, thoroughly protective and economical, in sizes, shapes and styles to meet your every need. And, most important, you have access to the countless new package ideas constantly being created in Continental's Research and Development Departments.

Specialists in packaging design give thorough study to your design problem from every angle and offer suggestions for either an entirely new design or for re-designing your old package to better meet the demands of your business. Finally, batteries of modern lithographic equipment, manned by craftsmen and aided by superior printing plates made in Continental's own Master Engraving Plants, assure you of excellence of your packages.

Every package today must do more than safely contain . . . it must be a sales aid. Answer the challenge of modern competition by giving your package the sales appeal of good design . . . the effectiveness of sparkling color and the utmost in merchandising value. When there is so much to be gained, it will pay you to bring your package problems to Continental—you can easily find the location of the nearest Sales Office on the reverse side of this page.



CONTAINERS *by* CONTINENTAL

XUM



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Boston, Mass.
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Hubbard 7172

Camden, N. J.
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Philadelphia-Camden 8810

Chicago, Ill.
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Spaulding 8480

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Tabor 4261

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1900 East Jefferson Ave.
Fitzroy 3292

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Preston 8674

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Guinotte & Lydia Aves.
Victor 7250



LET AN EXPERIENCED
CONTINENTAL
REPRESENTATIVE HELP YOU WITH YOUR PACKAGING PROBLEMS...

THE Continental Representative, skilled in "Packaging to Sell," offers the knowledge and experience gained thru many years of helping solve the package problems of many diversified businesses.

He also offers the advantages of Continental's large resources—39 plants strategically located from coast to coast . . . sales offices in principal cities . . . completely equipped research and development laboratories . . . a skilled organization of engineers and designers—all "Partners in the Business," with a deep personal interest in serving you well.

You will find it to your advantage to consult a Continental Representative. Write, wire or phone the sales office nearest you.

Los Angeles, Calif.
3820 Union Pacific Ave.
Angelus 7111

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265 West Trigg Ave.
Memphis 3-4622

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521 North Scott St.
Galvez 4145

New York City, N. Y.
100 East 42nd St.
Ashland 4-2300

Omaha, Neb.
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Omaha 1387

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P. O. Box 1242
Bridge 3550

San Francisco, Calif.
155 Montgomery St.
Garfield 7890

Syracuse, N. Y.
1016 East Water St.
Syracuse 2-2341

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Hazlett Ave. & 8th St.
Warwood 760

CONTINENTAL CAN COMPANY, INC.

NEW YORK CHICAGO SAN FRANCISCO

"It's Better Packed in Tin"



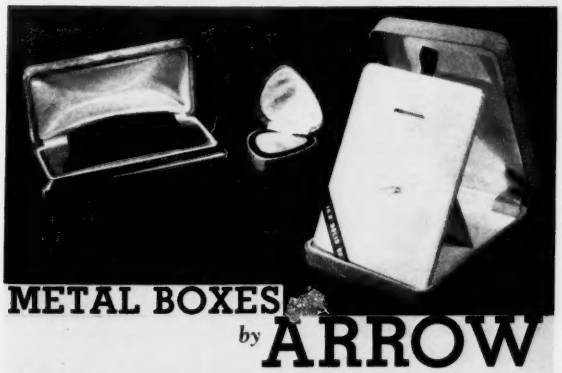
PAPER BOXES

Fancy shapes — die-cut — novelty effects—satin lined—any shape of handmade box.



WOOD BOXES

For perfume — watches — cosmetic items—lacquer sprayed finishes — leather or imitation leather covered—embossed effects—lined and plain.



METAL BOXES

For small items or sets—velvet and imitation leather covered—velvet and satin lined—chromium finishes.



MERCHANDISE DISPLAYS

Of cardboard—wood—metal—and combinations of these materials—for counter or window display.

• • • • •

REFER your box and display problems to a manufacturer who, because of diversified manufacturing equipment, is able to assure for your product the type of box or display it logically demands.

Our representatives are trained merchandising men who can be of service to you in the development of an idea as well as in the execution of orders.

by **ARROW**

MANUFACTURING COMPANY · INC

15th & HUDSON STREETS, HOBOKEN, NEW JERSEY

Telephone HOboken 3-8472 or REctor 2-1251

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In the Scale of Sales

Where is your product?

Take Candy for instance!



SALES were greatly increased packaged in our "AMKLEER" cellulose bags or envelopes.

The buying appeal can also be enhanced in beauty for your product whether it be a tie or an umbrella or what-not.

Are you satisfied with your present package?

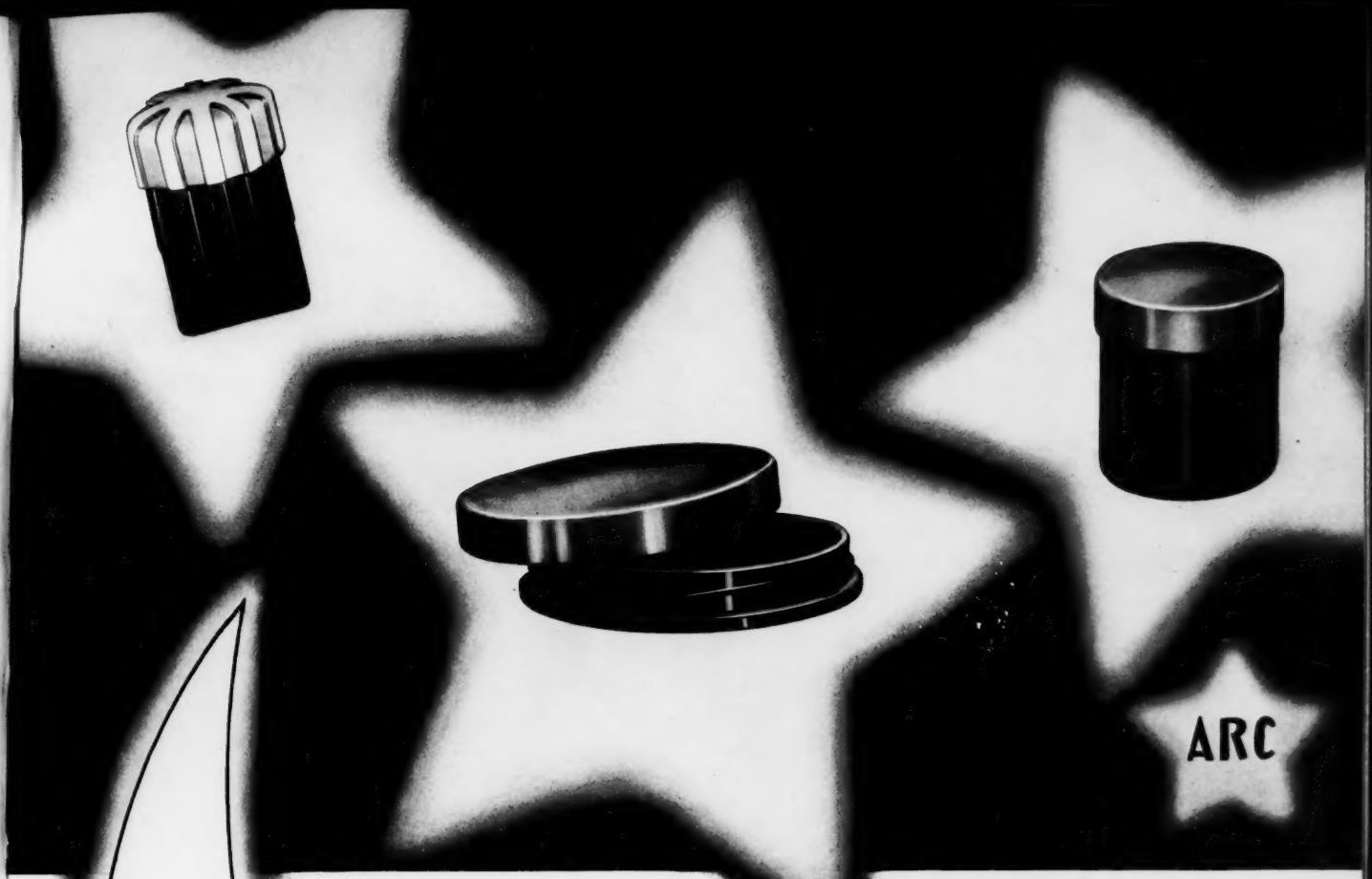
May we assist you?

THE AMERICAN PAPER GOODS COMPANY

KENSINGTON, CONN. . . . . CHICAGO, ILL.

SALES OFFICES

NEW YORK · BOSTON · SAN FRANCISCO



for an "All Star Container or Closure specify American Record Corporation *Custom Molding*

ANY
COLOR
Plain or Mottled
IN ANY PLASTIC
MATERIAL

▼

ARCOLITE
BAKELITE
DUREZ
DURITE
RESINOX

▼

URALITE
BEETLE
PLASKON
UNYTE

▼

LACANITE
LUMARITH
TENITE

HAVE you considered the sales advantages to be gained by the application of custom molded containers to your products? ◆ Our knowledge, our designing and molding skill. . . developed thru more than fifty years of experience . . . are always at your command!

AMERICAN RECORD CORPORATION

Molded Products Division: SCRANTON, PA.

Executive and Sales Offices:
1776 BROADWAY,
NEW YORK

SCRANTON FOR 50 YEARS BUTTON BRAND

CHICAGO ◆ CLEVELAND ◆ DETROIT ◆ HOLLYWOOD, CAL.

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REG. U. S. PAT. OFF.

ARABOL ADHESIVES

GLUES, PASTES and GUMS

for all kinds of Packaging Operations

Carton Sealing
Carton Wrapping
Tin Labeling
Glass Labeling
Sealing Shipping Cases
Paper Box Making
Paper Bag Making
Special Adhesive Work

For almost fifty years this organization has supplied packaging adhesives to the leading manufacturers and packers of the country.

Whether your packaging proposition requires labeling, wrapping, sealing or other adhesive operations we have the experience and the facilities for supplying the right glue to suit each specific need. Reliability and Uniformity have always distinguished ARABOL products.

We have perfected a special adhesive for every make of machine on the market which applies glue or paste in the process of packaging. Most of these adhesives have been developed in cooperation with the machine manufacturers and are recommended by them for producing best results with their equipment.

All users of adhesives are invited to avail themselves of the services of our experts. This is offered without obligation. Whether your adhesive requirements are simple or complicated, we will be glad to offer suggestions based upon our adhesive experience of almost 50 years.

THE ARABOL MFG. CO.

Telephone
NEW YORK OFFICES
AShland 4-8490

Cable Address
"ARABOL," New York

FOREIGN AGENTS:
Representation in

GREAT BRITAIN,
AUSTRALIA, CUBA, MEXICO
and other countries

Established 1885

Executive Offices
110 East 42nd Street
New York

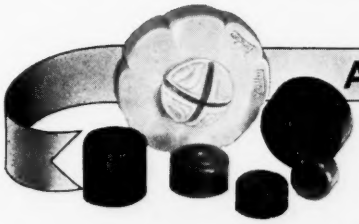
Eastern Factory at Brooklyn, N. Y.
Western Factory at Cicero, Ill.

WESTERN FACTORY AND
OFFICE AT
CHICAGO (Cicero, Ill.)

OFFICES & WAREHOUSES AT
Philadelphia, Boston
New Orleans, Atlanta
Seattle, San Francisco
Toronto and Montreal, Can.

Largest Adhesive Manufacturers in the World

CHOOSE THE CLOSURES YOU NEED FROM ARMSTRONG'S COMPLETE LINE!

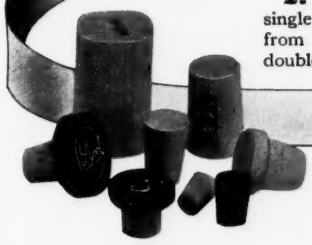


ARTMOLD CAPS AND JAR COVERS

1. Molded plastic caps and jar covers in standard and molded-to-order designs. Offered in short, medium, and long skirt styles. Caps are made in sizes from 8 mm. to 35 mm. Jar covers, from 33 mm. to 100 mm. A full line of colors, including pastel shades.



METAL CAPS AND JAR COVERS



2. Inexpensive metal screw caps for bottles and jars. Made in both single- and double-shell (concealed thread) construction. Sizes range from 15 mm. to 120 mm. for single-shell; 15 mm. to 100 mm. for double-shell. Furnished in plain colors or multi-colored private designs.

CORKS OF ALL KINDS

3. All grades, sizes, and types of corks including tapered, flange, straight, wedge-top, round-top, wood-top, shell, and Tierage and Expedicion champagne corks. Also, Embossed-Top corks combining a colorfully decorated hardwood top with the secure seal of cork. These are made to order in your own design.



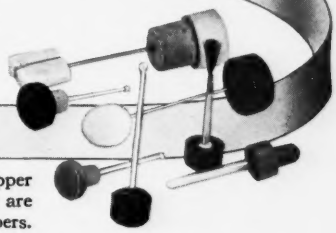
CEL-O-SEAL CAPS AND BANDS



4. Colorful hoods and bands of cellulose to be used in conjunction with any type of closure. Applied moist, they dry and shrink tightly around closure and bottle or jar. Can be had printed with counterfeit-proof designs or trade names.

CROWN CAPS

5. Full line of crown caps in stock and proprietary decorations and in made-to-order designs. Offered with cork composition or natural cork discs. Also with metal foil or treated paper spots for beer, high grade ginger ale and other beverages.



APPLICATOR CLOSURES



6. Glass rods; quill brushes; wool, felt, or cotton daubers; dropper attachments; and other special devices for applying contents are supplied with Artmold Caps, corks of all kinds, and rubber stoppers.

LINERS FOR CAPS

7. Cap liners of all sizes and types including cork, rubber, felt, pulpboard, and special compositions. Either plain or duplexed with metal foil or treated paper.

Our Package Styling Department will gladly cooperate in designing your packages—not only the closures, but containers, labels, and cartons as well. Our laboratory will run tests to find the proper seal. There is no charge or obligation for these services. Simply send us your packages and outline your needs.

For full information and samples of any Armstrong Closure, write Armstrong Cork & Insulation Company, Closure Division, 910 Arch Street, Lancaster, Pennsylvania.

Armstrong's Closures

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Changing the habits of a nation » » » »

People are quick to appreciate the added convenience given to certain products by packaging them in handy collapsible tubes. They show their appreciation by a steadily increasing demand for such products.

Almost every conceivable product of a paste or cream consistency is now being packaged in Bond Tubes. Perhaps your product can be merchandised more successfully in this popular and convenient-to-use type of container.

A representative will gladly call to discuss the advantages and economies of packaging your product in tubes without obligation.



BOND MANUFACTURING CORP.

WILMINGTON, DELAWARE

MANUFACTURERS OF "CORK-TEX DISCS" • CORK SPECIALTIES • BOND CROWNS



A GLANCE BACKWARD AND A LONG LOOK FORWARD

by Ad. Hesive

Prehistoric man hunted for his clothes, shelter, and sustenance. All were obtained by crude methods in their crudest state. Centuries of Progress have bridged the chasm from then until the present, with its high standards of living.

The present year will be one of searching out true values. Modern merchandise is judged by its external appearance. The manufacturer who is particular as to the external appearance of his package is equally particular regarding each process of manufacture.

There is a Star adhesive suited to every requirement of the packaging industry. Each carries the Bingham guarantee of quality, well known to the users of our products since 1849.

Of interest to the paper trade is our all-over design rubber roller. It is no longer necessary to import this type of roller. Write us for further information.

Send for one of our new desk calendars for 1934. They have a movable lid and the base contains compartments for pens, pencils, stamps, clips and what-not.

PASTES-GLUES-ADHESIVES-GUMS · ESTABLISHED 1849 ·

NRA WE DO OUR PART

★

BINGHAM BROTHERS COMPANY

(Founded 1849)

EVERY KIND OF ROLLER AND ADHESIVE

406 Pearl Street - - New York, N. Y.
521 Cherry Street - Philadelphia, Pa.
131 Colvin Street - - Baltimore, Md.
980 Hudson Avenue - Rochester, N. Y.

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BURT MACHINE COMPANY

BALTIMORE, MARYLAND

CHICAGO NEW YORK CITY SAN FRANCISCO LOS ANGELES

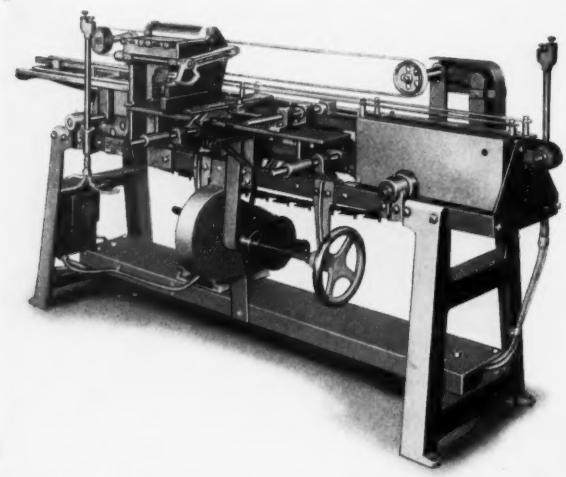
Manufacturers & Designers of Automatic Labeling, Casing & Shipping Container Sealing Machinery

PRODUCTS:
Automatic Labeling, Casing and Sealing Machines.

LABELING MACHINES:
There are several models—one for spot labeling and also applying full length labels to #10 round cans; one for cans with ears and full length labels; one for smaller round containers; one for slip cover cans; and one for applying labels to flat or semi-circular surfaces.

The "A" Models operate at the rate of 200 cans per minute when running at regular speed. Model "A" is for one size of cans, which can also be had for cans of two or more different heights, providing the diameter is the same. The adjustable Model "A" is a multiple diameter type (two or more diameters) suitable also for variable heights and built to order.

MODEL "U": Applies a coating of gum over the entire surface of the container to be covered by the label. Especially adapted for requirements which necessitate a gummed all over labeling job. Eliminates the slow shrinking of label process and preserves the lustre of the label. Operates at a speed of about 100 containers per minute.



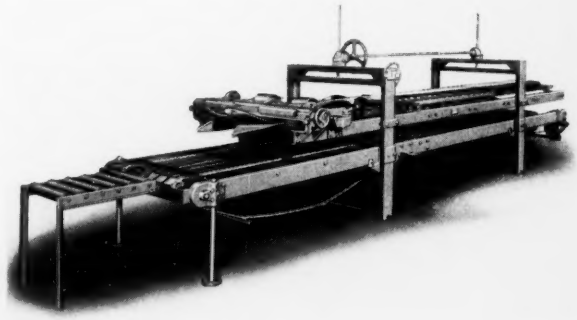
MODEL "E": This is for straight line application of labels to flat or semi-circular surfaces, etc. The adhesive is applied over the whole surface to be covered by the label, the latter is then applied, after which pressure is utilized to effect a complete seal.

The single type model above illustrated operates at a speed of about 60 of the average size containers per minute. A duplex model doubles the speed of the single type, this turning out about 120 per minute. The double type applies both front and back labels in one operation and can be supplied either in the single or duplex style. The Model "E" can be built for two or more size containers within a definite range, this being governed by how large or small the containers are.

The floor space of the single type is 7'6" x 3'4" wide.

Double type: Same length as single—4'4" wide.

MODEL "J" SHIPPING CONTAINER SEALING MACHINE:
Receives cases from the case packing machine or filled cases from any source, automatically gumming and sealing the same, making them ready for the shipping room. Easily adjustable for the range of cases in general use.



CASING MACHINES:
They assemble the necessary number of packages and then push these into the case. The Model shown, known as the ELECTRO, is for round cans and is 6'10" long, 2'2" wide. Other models are for rectangular packages.



BURT MACHINES generally fit in with other equipment such as Fillers or Cappers and, from this operation on, provide mechanical handling of the individual package and case.

XUM



GIFT WRAPS BOX-COVERS

4

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Random Numbers from the 1934 Lines of

BENNINGTON WAX PAPER COMPANY

and Subsidiary . . .

BEN MONT FANCY PAPERS, Incorporated

BENNINGTON, VERMONT

FIRST—Embossed Gold Foil, printed with one of the best of the year's popular plaids.

SECOND—Embossed Light Weight Silver Foil, printed with Christmas motifs.

{ Special foil embossings, colors and printings require from five to seven weeks for delivery. }

THIRD—The already famous Ben Mont COCKTAIL paper. 37 recipes recommended by noted bartenders and connoisseurs. 20" x 26" sheets by the ream, or in 5-sheet packages, folded to 10" x 13" and handsomely banded. A record resale item. Available in other materials and color combinations, on special orders, for box coverings or exclusive wrappings—or with your own recipes—or with your name or trade-mark substituted for the silver background.

FOURTH—Standard Transparent Cellulose, printed with most attractive of patterns for an outstanding holiday wrapping.

FIFTH—A Bennington Waxed Paper, delicately printed. Compare the moisture and air resistance qualities of this sheet against any other waxed paper.

SIXTH—Coated Cellosheen with bronze.

SEVENTH—Black Cellulose printed with silver stars. A truly beautiful and dignified conception. With the new crinkle effect to allow for shrinkage and prevent breakage on packages.

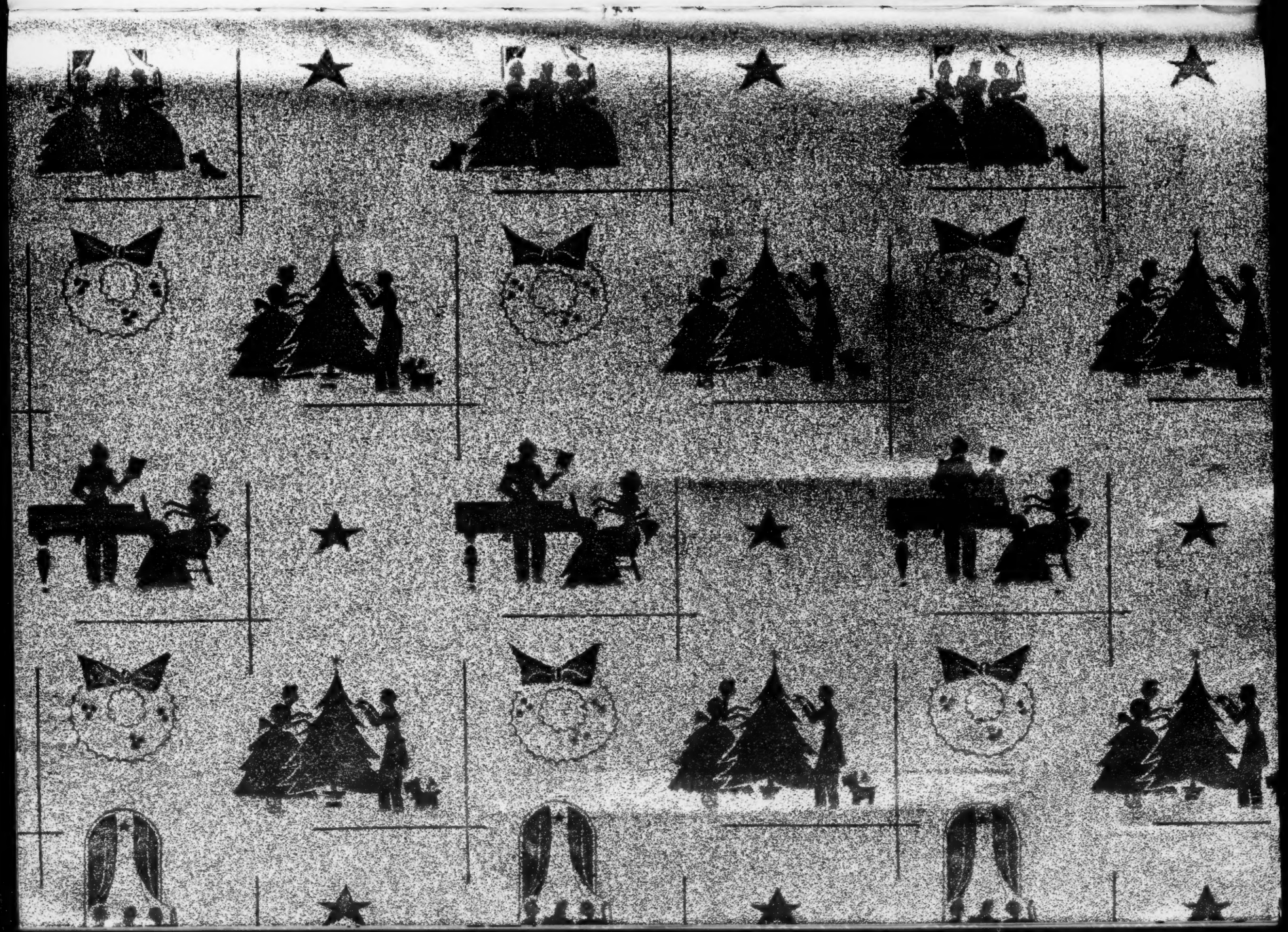
EIGHTH—Illustrating one of the newest and most sensational of Ben Mont developments—WATERPROOF WATER COLORS. Prove them for yourself. They're even washable! Consider their elimination of the only objection to this otherwise superior printing method. An exclusive Ben Mont process achieved in our own laboratories.

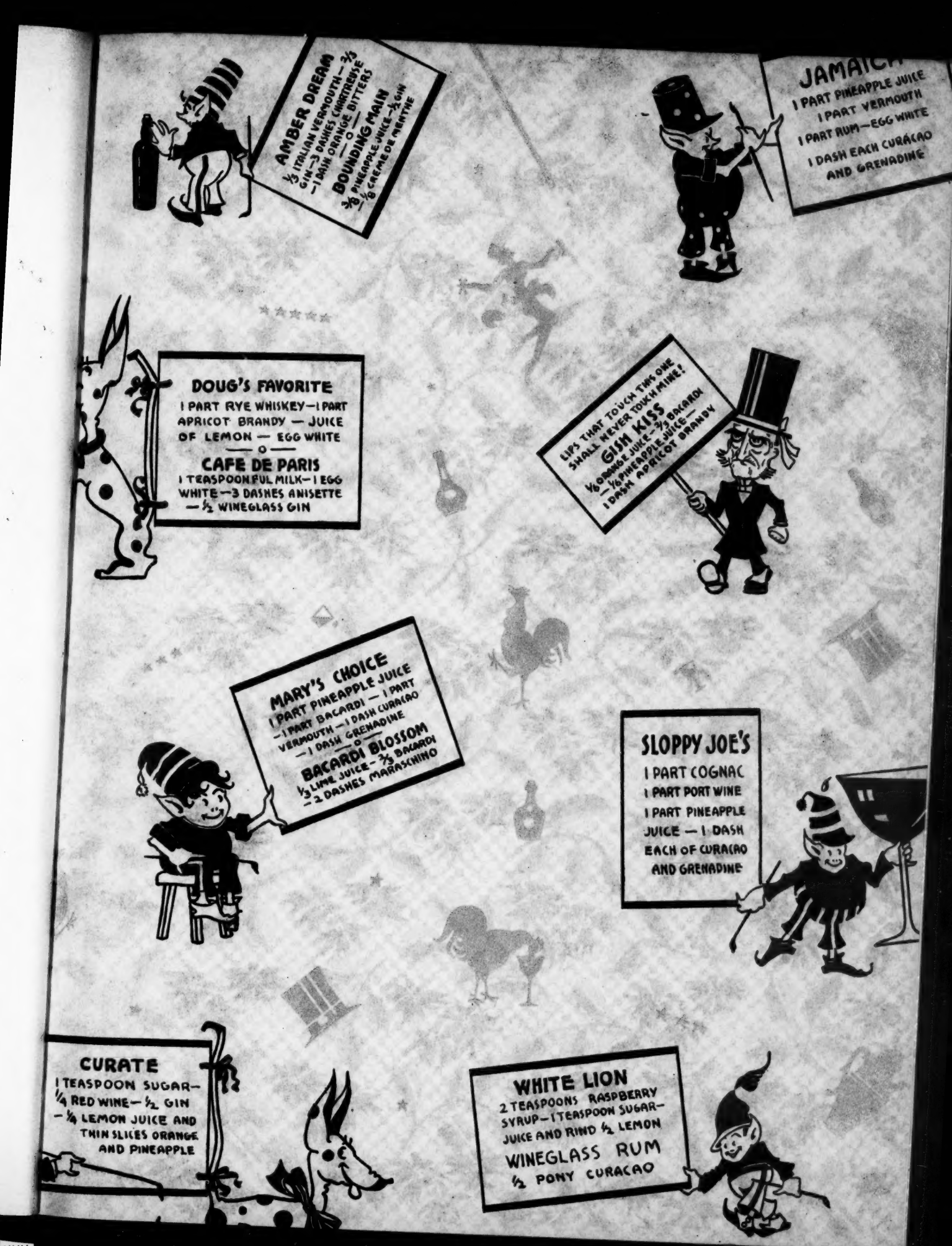
NINTH—A sheet that, together with this portfolio cover, introduces another Ben Mont creation—COATED PAPERS IN ANY WEIGHT, including thinnest tissues.

TENTH—Another of the new Ben Mont coated papers with flint finish and printed with a preferred design.

ELEVENTH—A few of the Ben Mont Japanese Tissue ribbons.

TWELFTH—Pictures of our mills, and map of our shipping advantages.




AMBER DREAM
⅓ ITALIAN VERMOUTH—⅔ GIN—3 DASHES CHARTREUSE—1 DASH ORANGE BITTERS
—o—
BOUNDING MAIN
⅜ PINEAPPLE JUICE—⅝ GIN
⅛ CREME DE MENTHE
JAMAICA
1 PART PINEAPPLE JUICE
1 PART VERMOUTH
1 PART RUM—EGG WHITE
1 DASH EACH CURACAO AND GRENADINE
DOUG'S FAVORITE
1 PART RYE WHISKEY—1 PART APRICOT BRANDY — JUICE OF LEMON — EGG WHITE
—o—
CAFE DE PARIS
1 TEASPOONFUL MILK—1 EGG WHITE—3 DASHES ANISETTE—½ WINEGLASS GIN
LIPS THAT TOUCH THIS ONE SHALL NEVER TOUCH MINE!
GISH KISS
⅙ ORANGE JUICE—⅔ BACARDI—⅙ PINEAPPLE JUICE—1 DASH APRICOT BRANDY
MARY'S CHOICE
1 PART PINEAPPLE JUICE—1 PART BACARDI—1 PART VERMOUTH—1 DASH CURACAO—1 DASH GRENADINE
—o—
BACARDI BLOSSOM
⅓ LIME JUICE—⅔ BACARDI—2 DASHES MARASCHINO
SLOPPY JOE'S
1 PART COGNAC
1 PART PORT WINE
1 PART PINEAPPLE JUICE—1 DASH EACH OF CURACAO AND GRENADINE
CURATE
1 TEASPOON SUGAR—¼ RED WINE—½ GIN—¼ LEMON JUICE AND THIN SLICES ORANGE AND PINEAPPLE
WHITE LION
2 TEASPOONS RASPBERRY SYRUP—1 TEASPOON SUGAR—JUICE AND RIND ½ LEMON
WINEGLASS RUM
½ PONY CURACAO

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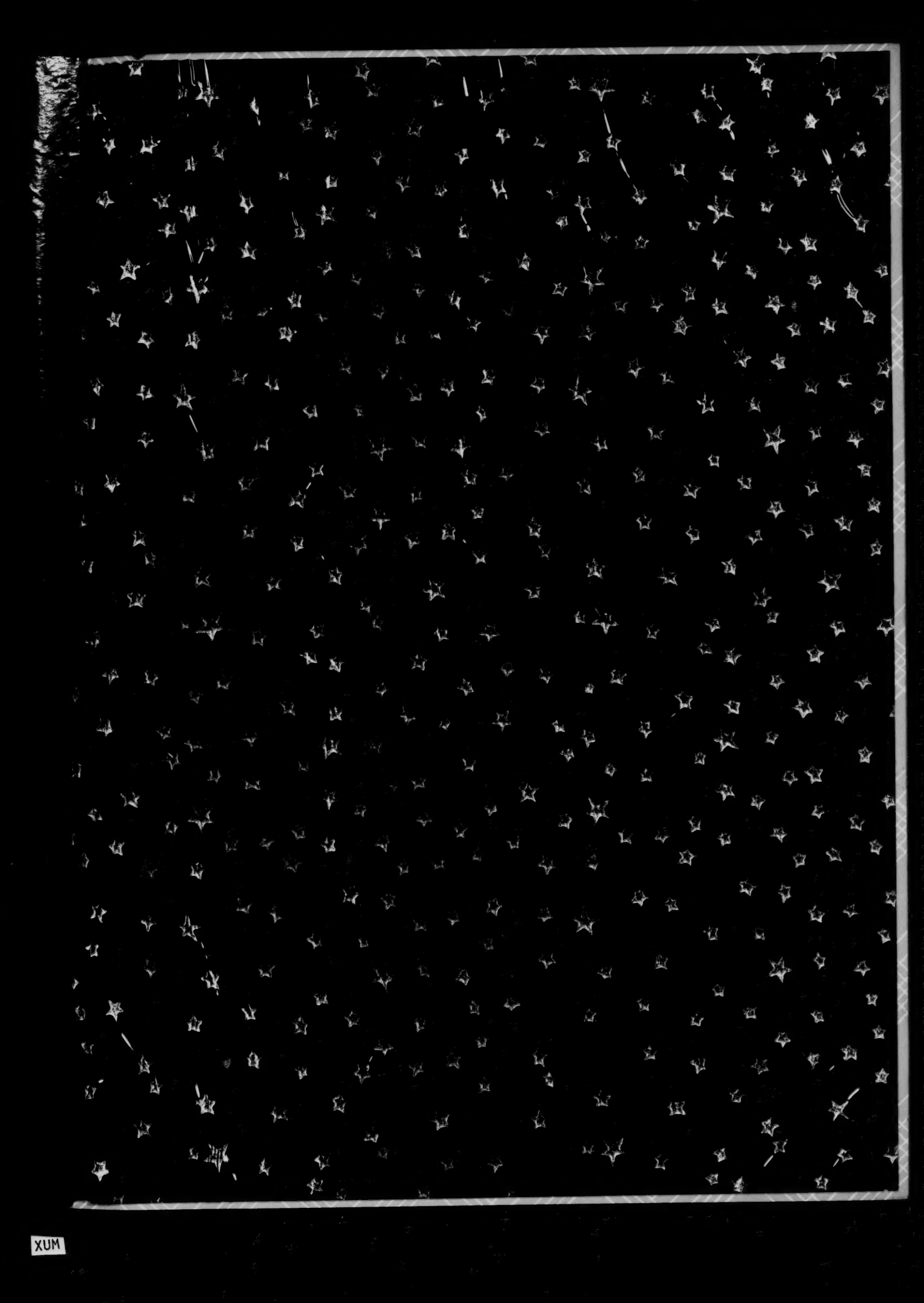
AMBER DREAM
DOUNDING MAIN
CAFE DE PARIS
DOUG'S FAVORITE
GIM KISS
MARY'S CHOICE
BACARDI BLOSSOM
SLOPPY JOE'S
WHITE LION
WINEGLASS RUM
CURATE
JAMAICA

JAMAICA
1 PART PINEAPPLE JUICE
1 PART VERMOUTH
1 PART RUM—EGG WHITE
1 DASH EACH CURAÇAO
AND GRENADINE
AMBER DREAM
½ ITALIAN VERMOUTH—½
1 DASH ORANGE BITTERS
—O—
DOUNDING MAN
½ CRÈME DE MENTHE
½ PINEAPPLE JUICE—½ GIN
DOUG'S FAVORITE
1 PART RYE WHISKEY—1 PART
APRICOT BRANDY — JUICE
OF LEMON — EGG WHITE
—O—
CAFE DE PARIS
¼ WINEGLASS GIN
WHITE—3 DASHES ANISETTE
1 TEASPOONFUL MILK—1 EGG
GISH KISS
SMALL NEVER TOUCH MINE!
½ PINEAPPLE JUICE—½ BRANDY
1 DASH APRICOT BRANDY
LIPS THAT TOUCH THIS ONE
SLOPPY JOE'S
1 PART COGNAC
1 PART PORT WINE
1 PART PINEAPPLE
JUICE — 1 DASH
EACH OF CURAÇAO
AND GRENADINE
MARY'S CHOICE
1 PART PINEAPPLE JUICE
—1 PART BACARDI — 1 PART
VERMOUTH—1 DASH CURAÇAO
—O—
BACARDI BLOSSOM
½ LIME JUICE—½ BACARDI
—2 DASHES MARASCHINO
WHITE LION
2 TEASPOONS RASPBERRY
SYRUP—1 TEASPOON SUGAR—
JUICE AND RIND ½ LEMON
½ PONY CURAÇAO
WINEGLASS RUM
CURATE
EASPOON SUGAR—
RED WINE—½ GIN
½ LEMON JUICE AND
THIN SLICES ORANGE
AND PINEAPPLE

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XUM





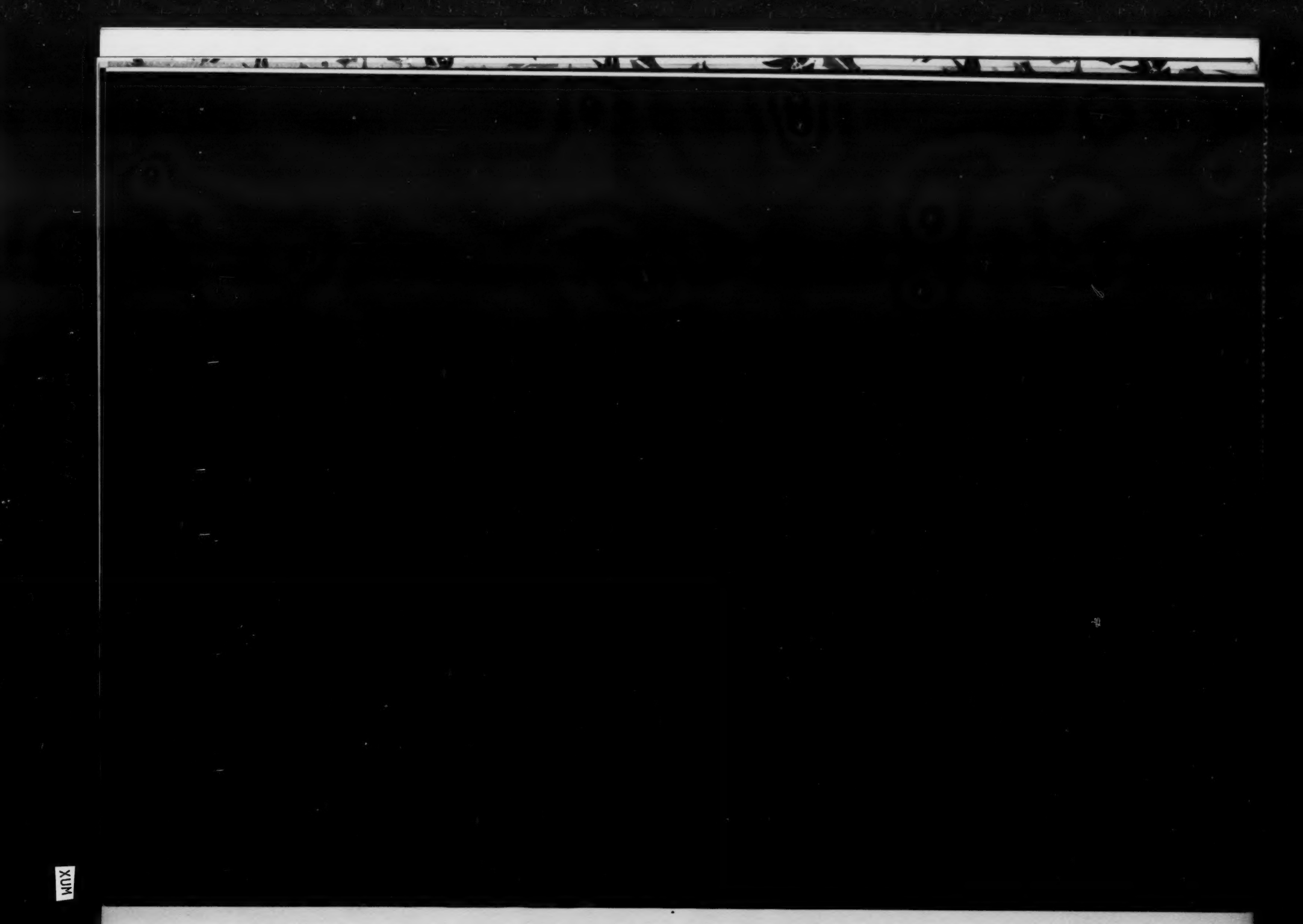
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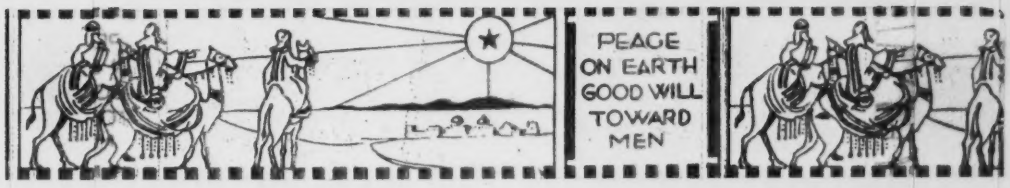
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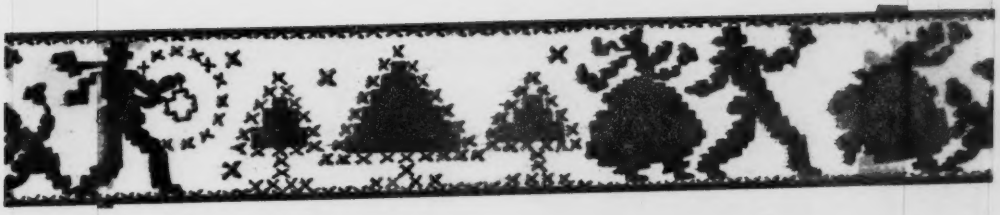


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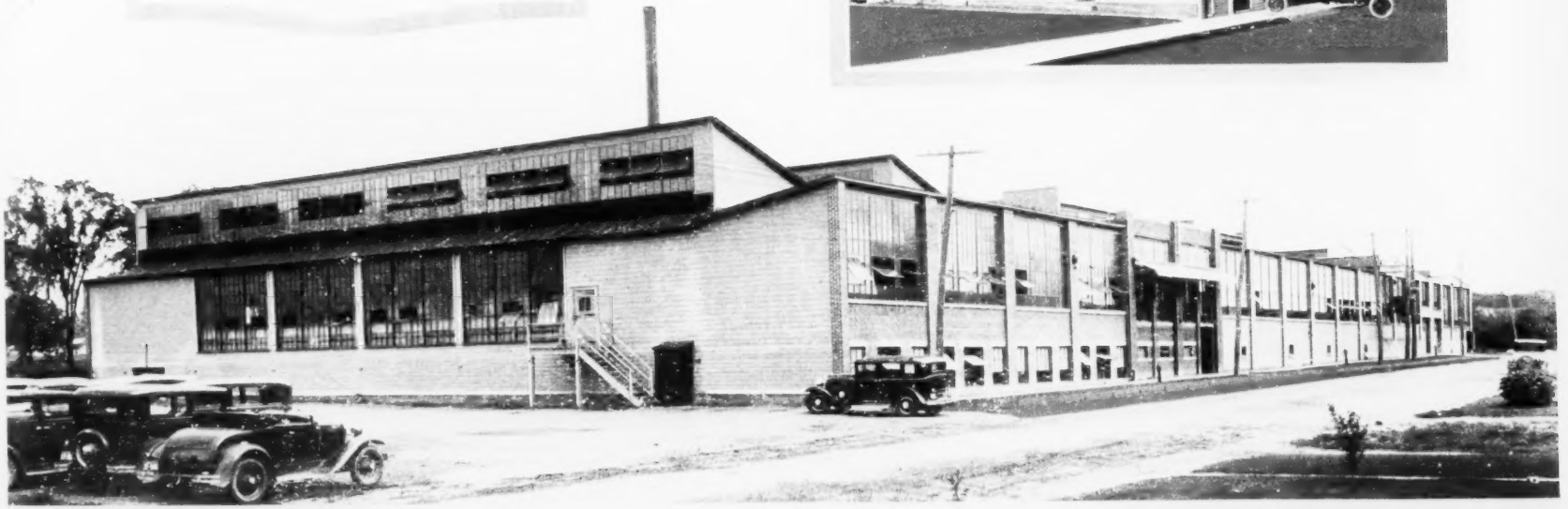




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Below----BENNINGTON
WAX PAPER COMPANY
Main Mill---Designed and Built
For Most Efficient Manufacture
of Household Paper Products.
At Right----BEN MONT FANCY
PAPERS, Inc., Subsidiary of
BENNINGTON WAX PAPER CO.

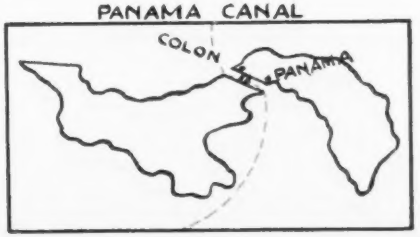




THE "BEN MONT" MILLS AT BENNINGTON, VERMONT



PANAMA CANAL



BENNINGTON to Albany, N. Y., 37 miles---New York City, 169 Miles---Boston, 137 Miles---Philadelphia, 259 Miles---Cleveland, 502 Miles---Detroit, 589 Miles---Chicago, 870 Miles.

BENNINGTON, "Southern Gateway to Vermont", Less than 4 1-2 hours mail and Passenger Service for New York City, 24 hours freight service, on direct Rutland-N. Y. Central Railroad line from Montreal to New York City Shipments routed to Southern Atlantic, Gulf and Pacific Coast points via coastal and intercoastal steamship lines



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BEN MONT SERVICES TO YOU

. . . Can Be Many and Invaluable

ALL the greatest chain store organizations, several of the largest industrial companies, and favored jobbers are among our customers. They have taught us the secrets of highest quality and lowest cost in mammoth volume.

Our line of waxed papers is the most comprehensive in America—and we keenly enjoy originating new papers to meet unusual problems. Available by pound, ream, or packaged in rolls, cutter boxes and slip-sheet packages.

Our decorative papers, foil and transparent cellulose are recognized leaders in these fields.

Our engineers and mechanics have devised and built the Ben Mont shredding machine that could supply the world with all shredded paper needs, from quarter-inch down to hair-breadth, for decorative or packing purposes. Colored waxed papers, plain papers or transparent cellulose. Small resale packages wrapped in transparent cellulose, or 5 or 10-pound cartons, or 100 or 200-pound bales.

Our laboratories, under the direction of a noted former European chemist, are open to your difficulties.

Our batteries of domestic and imported multi-color presses, operating with oil or aniline inks, water colors or bronzing, are meeting the exacting demands of nationally-known organizations. While this department was established for our own requirements, we can arrange very advantageous relationships for large and consistent users of printing.

You might, very easily, find it profitable to become acquainted with our facilities.

XUM

The foregoing pages will show you unique and desirable paper and printing results for box covers and wrappings.

BENNINGTON WAX PAPER COMPANY

and subsidiary—

BEN MONT FANCY PAPERS, Incorporated

BENNINGTON • VERMONT

This is **BEN MONT VELLETTRE** Cover


BUFF
CANARY
CORAL
BLUE
WHITE
Ridgelo
CLAY COATED
FOLDING
BOXBOARD
IS MADE IN EIGHT STOCK LIGHTFAST COLORS AND WHITE AS SHOWN AND IN OTHER SHADES TO ORDER
• • • SAILS SMOOTHLY AHEAD
ORANGE
ON THE SEA OF FINE PACKAGING • • •
GREEN
RED
YELLOW

XUM

Ridgelo

CLAY COATED

FOLDING BOXBOARD

Stock Litefast Colors

Buff	Coral	Orange	Red
Canary	Blue	Green	Yellow

Caliper .016; size 28 x 44 Double Lined

Gold, Silver, Copper

Calipers .016 and .024 — size 28 x 22

Other colors may be matched as desired.

White

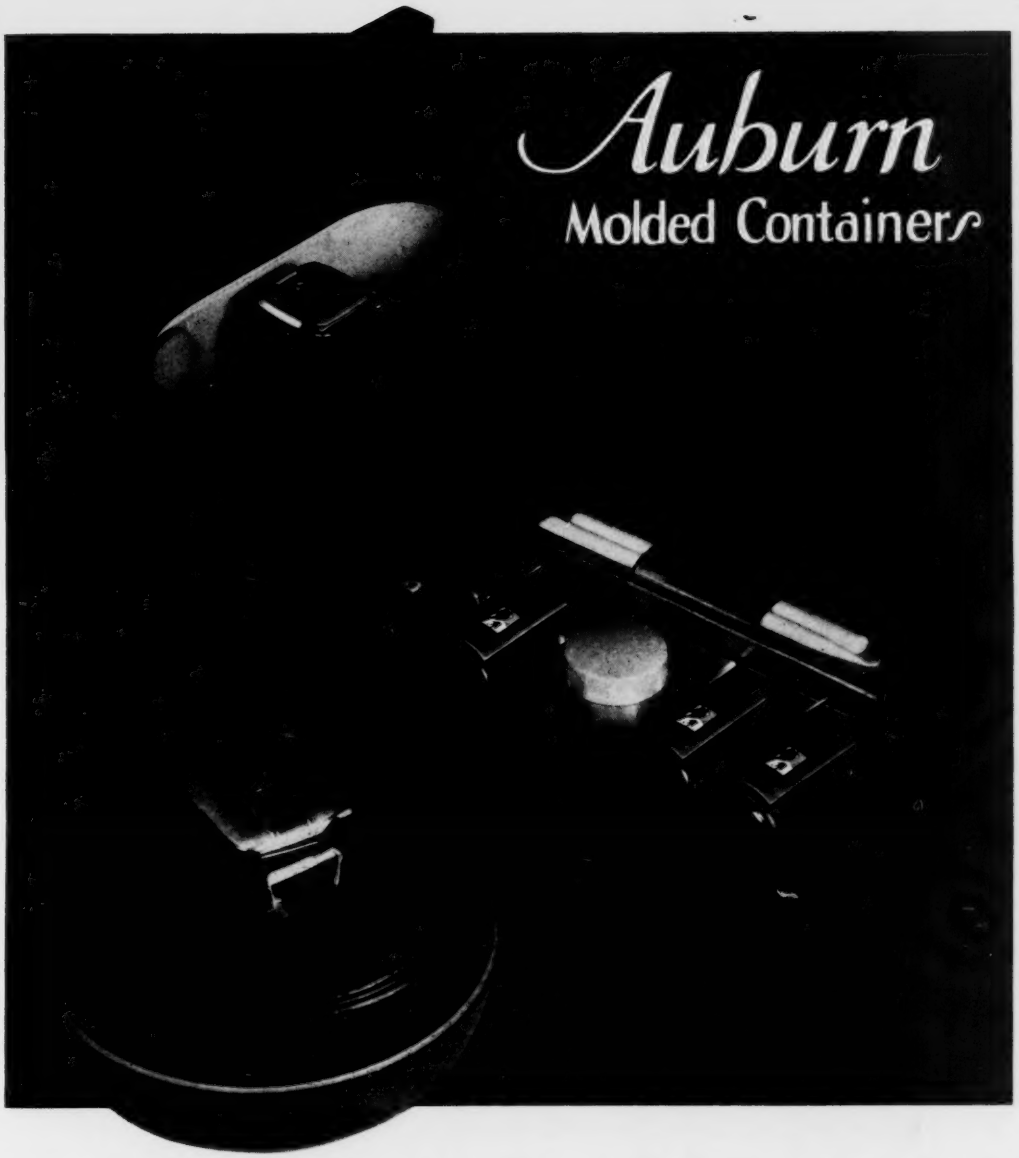
.012, .016, .018, .020, .024, .030 Double Lined

.016 Single Lined — size 28 x 44

This is RIDGELO Folding Boxboard Clay Coated White two sides — .016

Made at
RIDGEFIELD, NEW JERSEY
by
LOWE PAPER COMPANY

XUM



STEP-UP YOUR SALES WITH MOLDED CONTAINERS THAT SERVE A DOUBLE PURPOSE!

Some manufacturers call them "Re-Use Packages," and others, "After-Use Packages." As sales stimulators, they are always effective, as many manufacturers have had the pleasure of discovering.

Perhaps the sale of your product can be accelerated by merchandising it in an attractive molded container that has the "re-use" appeal.

We can offer many practical ideas along this line to manufacturers interested in this successful method of promoting sales.

Send for an Auburn representative and let him work closely with you in developing an appealing re-use package.

XUM





A TWIST...
IT'S OFF



A SNAP...
IT'S ON



RESEALS
PERFECTLY

For Perfect Sealing Plus Economy, Use SEAL-KAPS

SEAL-KAPS are the most economical caps of their kind on the market---and will reduce your capping cost 50% to 75%.

Made of a heavy laminated paper, thoroughly impregnated with pure, refined wax, they resist moisture and atmospheric conditions and form a perfect seal for jars.

Their convenience to consumers is another valuable feature. Seal-Kaps are readily removed and replaced; and each time they are replaced they tightly reseal the jars.

Write for samples and try them on your own products. One of our laboratory men will gladly cooperate with you in connection with any tests you want to make.

As Seal-Kaps are universally used on milk and cream bottles—please specify "Seal-Kap" for jars, to avoid confusion.

AMERICAN SEAL-KAP CORPORATION

11-05-44th Drive ★ Long Island City, N.Y.

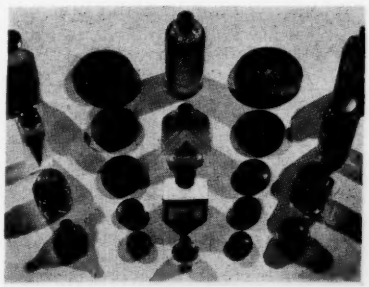
XUM

BAKELITE CORPORATION

247 PARK AVENUE, NEW YORK, N. Y.

BAKELITE CORP. OF CANADA, LTD., 163 Dufferin Street, TORONTO, ONT., CANADA

Works at Bound Brook, N. J.; Bloomfield, N. J. Sales Offices at Chicago, Ill.; Cleveland, O.; Hartford, Conn.



Bakelite Molded Closures for Bottles, Tubes, and Jars

Development of the modern art of packaging demands that a closure serve a double duty. It must thoroughly seal and protect the contents and add to the attractiveness and salability of the product. Because they meet these needs so admirably, it is easily understood why Bakelite Molded closures have been adopted for so many packaged products.

Bakelite Molded closures are noncorrodible, possess unusual lustre and beauty and are readily formed into exclusive designs. The molded threading is clean, accurate, and uniform, and the closures are easily tightened and released.

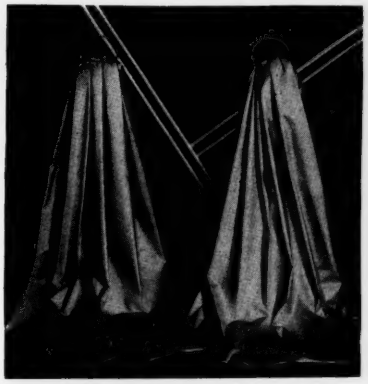
Bakelite Molded Containers and Dual-use Packages

Bakelite Molded containers are successfully promoting the sale of products of widely different kinds, including cosmetics, candy, safety razors, garters, belts, watches, and dental burs.

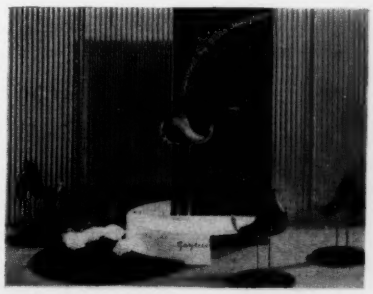
Many of these containers are designed for dual-use; first, as an attractive package for a product, and then for after-use as a cigarette box, jewel case, ash tray, or other service. Because of its beauty of color and finish, its strength and durability, Bakelite Molded is especially well suited for dual-use containers.

BAKELITE

TRADE MARK REG U S PAT OFF



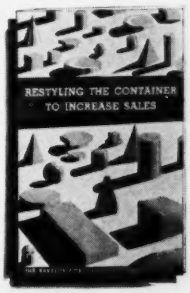
Moisture-proof silver and gold Revolite, a flexible cloth treated with Bakelite Resinoid. A choice of colors and designs also are available. Used for box covers and linings, displays, and decorative purposes.



Merchandise Displayers of Bakelite Materials

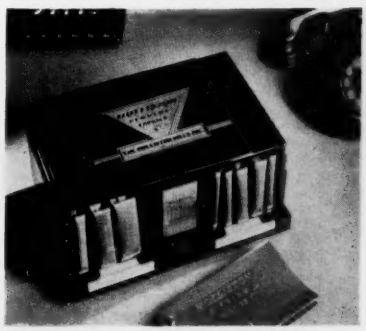
Attractive modern displayers, that invite favorable attention to the products shown, are being made of both Bakelite Molded and Bakelite Laminated. Displayers made of these materials retain their fresh, new appearance indefinitely, and do not become shabby and unsightly.

Write for Booklet T, "Restyling the Container to Increase Sales." Whether your product is packaged in tubes, bottles, jars, or boxes, you will find this booklet helpful. Do not hesitate to call on us for information and assistance in adapting Bakelite Materials to any of your products.

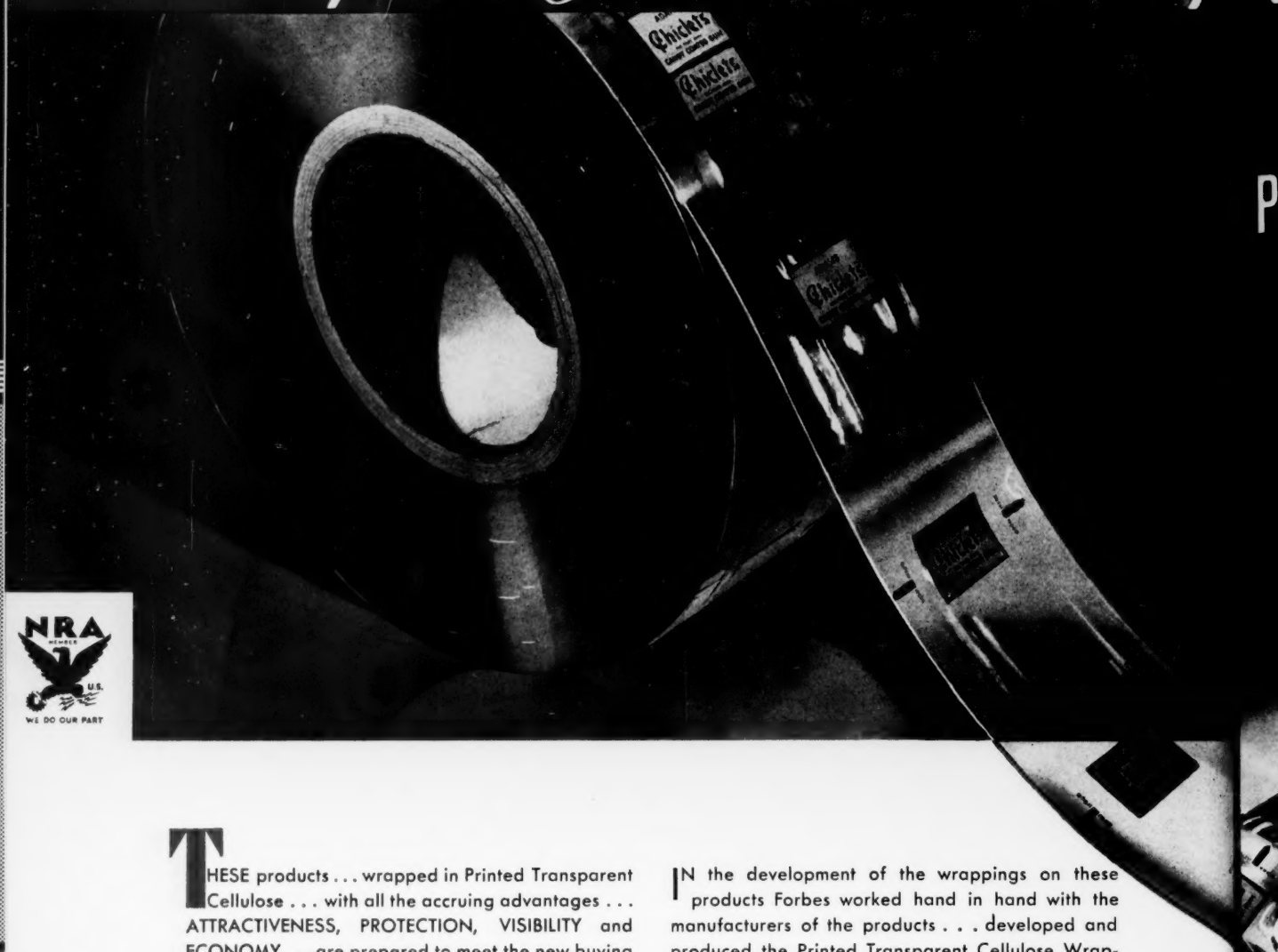








Are your products ready



NRA MEMBER U.S. WE DO OUR PART

THESE products . . . wrapped in Printed Transparent Cellulose . . . with all the accruing advantages . . . ATTRACTIVENESS, PROTECTION, VISIBILITY and ECONOMY . . . are prepared to meet the new buying methods that will prevail in the new buying era which is now upon us.

Mr. and Mrs. Consumer are rapidly being educated to appreciate quality of product by SEEING the product in an attractive printed transparent wrapping . . . and to demand the sanitary protection and retention of quality afforded by Transparent Cellulose.

You should act NOW . . . and make your product ready for this new market . . . by wrapping it in Forbes Printed Transparent Cellulose.

IN the development of the wrappings on these products Forbes worked hand in hand with the manufacturers of the products . . . developed and produced the Printed Transparent Cellulose Wrappings, and assisted in developing economical automatic methods of applying those wrappings to the product.

Forbes is prepared to furnish this material . . . accurately printed in one or more colors . . . in rolls and in sheets. For economical wrapping it should be used in rolls.

FORBES PRINTED TRANSPARENT CELLULOSE *in rolls, accurately printed and accurately rewound and trimmed, is meeting satisfactorily the exacting requirements of automatic packaging.*

WE ARE READY TO HELP YOU . . . . PLACE YOUR PROBLEM WITH US

FORBES

LITHOGRAPH MFG. CO.

P. O. BOX 513, BOSTON

NEW YORK CHICAGO PHILADELPHIA CLEVELAND DETROIT ROCHESTER

XUM

dy for the New buying era ?

FORBES

PRINTED TRANSPARENT CELLULOSE

ROLLS OR SHEETS

ATTRACTIVENESS	Colorful and attractive designs, printed in accurate register in one or more brilliant and opaque colors
VISIBILITY . . .	Your product, enclosed in Printed Transparent Cellulose can be seen by the shopper—and helps sell itself
ECONOMY . . .	Printed Transparent Cellulose in rolls permits automatic packaging with resultant economy in manufacture
PROTECTION . .	Sanitary cleanliness, with retention of that appealing quality you build into your product





ESTABLISHED 1836

COLT'S PATENT FIRE ARMS MANUFACTURING CO.

MANUFACTURERS OF

FIRE ARMS - ELECTRICAL EQUIPMENT - MOULDED PLASTICS PRODUCTS - DISH AND METAL CLEANING MACHINES

HARTFORD, CONNECTICUT, U. S. A.

Jan. 1, 1934

PLASTICS DIVISION

• • •

CUSTOM MOULDING DEPARTMENT

Moulders in
Coltrock
Coltrock Supremé
Vulcabeston
201 Stock
Durez
Bakelite
Beetle
and
Other
Special
Compounds

• • •

BUTTON DEPARTMENT

Moulded
Buttons
For the
Sweater
Garment
and
General
Clothing
Trade

• • •

MECHANICAL GOODS DEPARTMENT

Manufacturers
of
Vulcabeston
Sheet
Packing
Moulded
Packings
Gaskets
Insulation
Sheet
Brake Lining

B.F.C. says.

Tho you may be blessed with the beauty of a perfect body it is the cloak of Character and reputation that prevails - influences and lives on.

Water always finds its own level; Merchandise and ability are no exceptions.

We have faith in our Country, Our People and our products and in the ever existent Markets for our standard of "Quality and Service"

The one yardstick of "Profitable Economy" is "Quality and Service."

It is to those who would know and appreciate the Science of "Profitable Economy", in the possibilities and varied applications of the "Plastics Art" that we say,

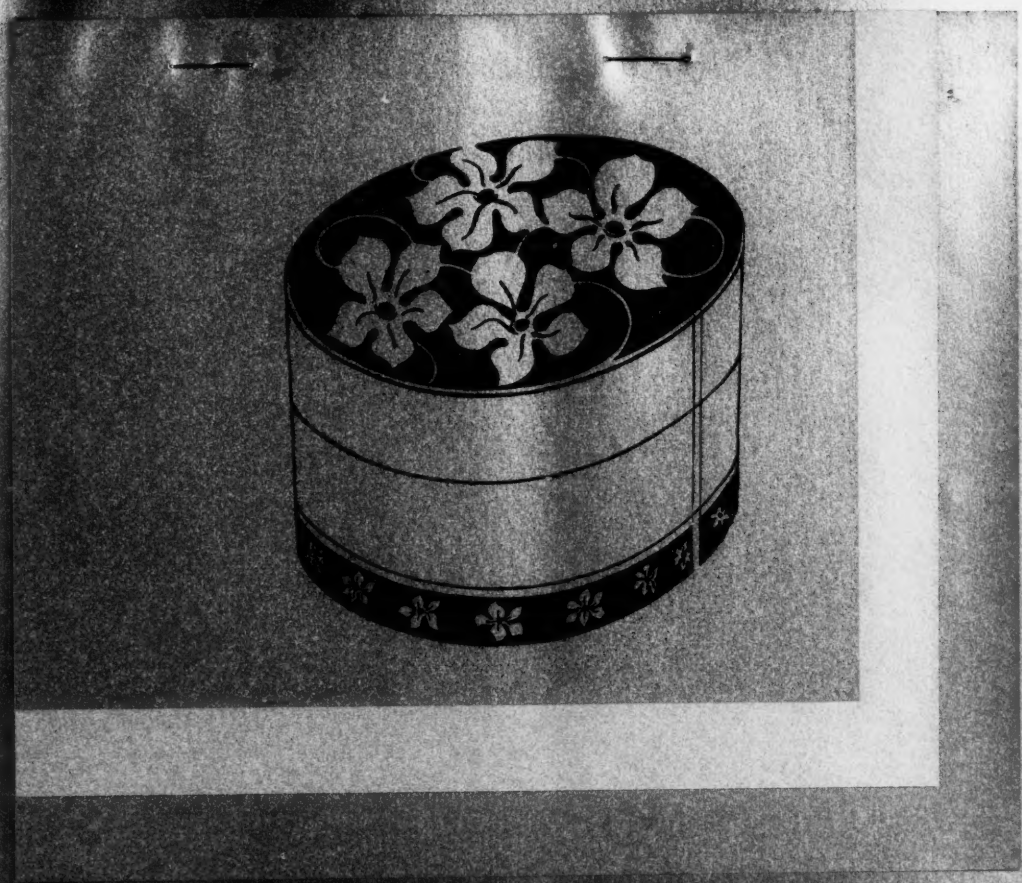
"Good will is born of Quality, Service, Character and Reputation; Beyond the influence of "The Drifters," in your line and our line we will Cooperate and "Live On".

Sincerely
B.F. Conner

SPECIALISTS IN MOULDED CLOSURES FOR TIN, GLASS AND OTHER CONTAINERS

(B. F. CONNER)

XUM



SILVER—COPPER

Two Decorative Metals of the Ages

[illegible] originated at the dawn of history and has [illegible] and increased to the present era. Its [illegible] arouse desires which will not be denied, [illegible] and amplifying the quality of the [illegible]

[illegible] coating applied to papers and boxboards [illegible] packaging industry was originated by Artcote Papers, Inc., who have specialized in this field exclusively [illegible] to maintain their leadership.

MANUFACTURED BY

ARTCOTE PAPERS, INC.

LEXINGTON, N. J.

ARTCOTE

ARTCOTE PAPERS, INC.

IRVINGTON, NEW JERSEY

MANUFACTURERS OF

ARTCOTE

TRADE MARK REG. U. S. PAT. OFF.

Gold, Silver and Copper Metallic Coated Paper and Boards

Suitable for Box Wraps – Greeting Cards – Embossed Seals – Flat Labels – Folding Cartons – Booklet Covers or Folders – Blotters – Direct Mail Advertising Display Cards

MAIN OFFICE AND PLANT, 380 COIT ST., IRVINGTON, N. J.

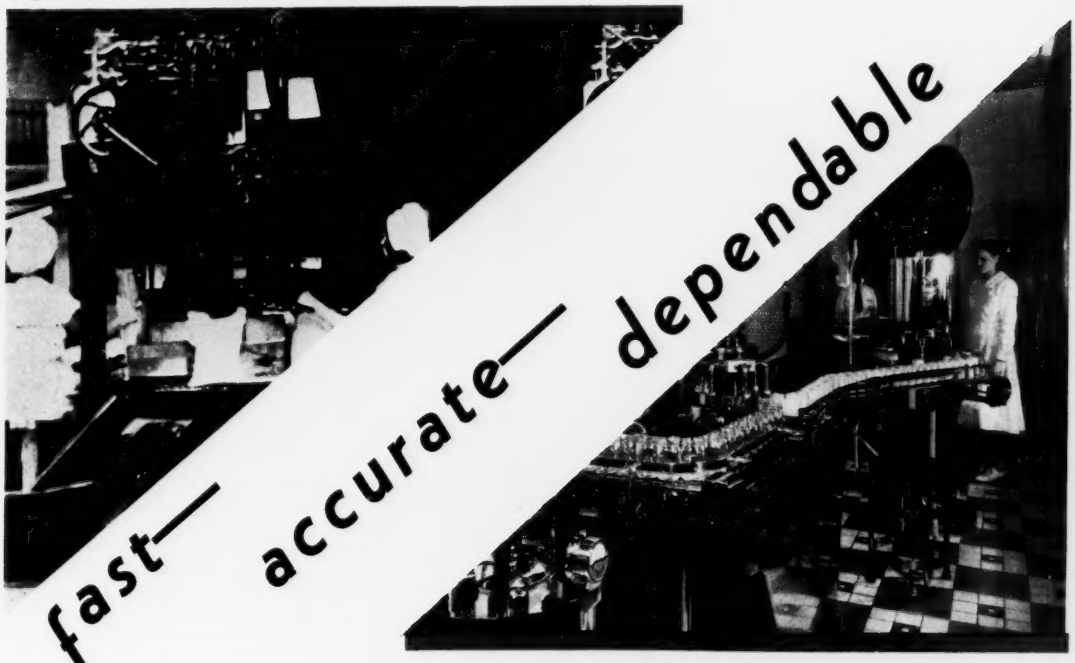
PHILADELPHIA OFFICE
5356 Chew Street

CHICAGO OFFICE
1103 Merchandise Mart

LOS ANGELES OFFICE
836 San Julian Street

XUM

HOEPNER—*Comprising Automatic Equipment for weighing or measuring and filling of product to package; sewing machines; baggers, etc.*



CAPEM—*Specializing in the mechanical sorting, feeding and applying of caps and closures of all types from bulk supply to your container.*

More Effective....

than pages of description is this impressive evidence taken from our customer files. Not once but many times has it been our privilege to serve these leaders of American Industry. They have contributed materially to that wealth of experience which provides the background or CAPEM and HOEPNER equipment.

E. I. du Pont de Nemours Co.
Continental Distilleries
Colgate Palmolive Co.
Kraft-Phoenix Cheese Co.
Standard Oil Co. of Ind.
Swift & Co.
Horlick Malted Milk Co.
Corn Products Refining Co.
Vacuum Oil Co.
Aluminum Company of America
Daggett & Ramsdell
The Borden Company
Best Foods, Inc.
Burma Vita Co.
Dr. Pierce's
Hiram Walker & Sons, Ltd.
The Lavoris Co.
International Laboratories
Petrolagar Laboratories
Kroger Grocery & Baking Co.
American Stores Co.
Andrew Jergens Co.
Parke-Davis & Co.
Standard Oil of N. J.
The Mentholatum Co.
The Bayer Co.
Emerson Drug Co.
Liquid Veneer Co.
The Maltine Co.
E. R. Squibb & Sons
Chesebrough Mfg. Co.
Wildroot, Inc.
C. H. Phillips Chemical Co.
McKesson & Robbins Co.
Libby, McNeil & Libby
Bristol Myers Co.
Quaker Oats Co.
American Sugar Refining Co.
Grasselli Chemical Co.
International Salt Co.
American Beet Sugar Co.
Dow Chemical Co.
Morton Salt Co.
Great Western Sugar Co.
General Chemical Co.
Hershey & Co.
General Foods, Inc.
Standard Brands, Inc.
California Packing Co.
Pennsylvania Sugar Refining Co.
Best Foods, Inc.
Beech-Nut Packing Co.
Arbuckle Bros.
Godchaux Sugars, Inc.
Grange League Federation

CONSOLIDATED PACKAGING MACHINERY CO.

1400 WEST AVENUE
BUFFALO, N. Y.

XUM


USE THIS 7 point
Cream Nujol
Premier
TOMATO CATSUP
KRAFT Mayonnaise
Premier OLIVES
HEINZ TOMATO JUICE
KELPAMALT
CW
SWEET MIXED PICKLES
CROWN CORK &

service!

TO OBTAIN THE *right* CLOSURE FOR YOUR PRODUCT

WHEN closures are the question, look to C. C. S. for service. You will find C. C. S. Service is the kind that considers much more than price.

C. C. S. offers a wide variety of closures for every type of glass packed product—some of them available only here. And the experience of the C. C. S. organization is so broad and so diversified that there is hardly a chance that we are not familiar with the sealing requirements of products similar to yours.

Whether you are designing a new package or restyling your present one, submit your sealing requirements to C. C. S. Learn the real meaning of 7 Point Service and how it smooths the way to the best and most economical sealing of your particular product.

CROWN SCREW CAPS

The only screw caps on the market with the patented Deep Hook Shaped Thread—an exclusive C. C. S. development which means a greater pull-down sealing pressure than has heretofore existed, together with less friction in application and removal.

CROWN LUG CAPS

An efficient, dependable type of closure for many kinds of food, drug and toilet preparations. These caps, as made by C. C. S., have earned an enviable reputation for exceptional beauty of decorations.

CROWN ONE PIECE VACUUM SCREW CAPS

A new C. C. S. development that does away with the discs formerly used in vacuum caps. Made with a patented liner that does not stick to glass and the patented Deep Hook Shaped Thread.

C. C. S. CROWNS

The Standard throughout the world for beer and carbonated beverages of all kinds. Universally used.

CROWN MASON CAPS

The perfect seal for mason jars. Have the patented Deep Hook Shaped Thread, insuring better sealing and easier removal. Made in both one piece and two piece types.

AXA CROWNS

An efficient, hermetic closure of the crown type, for food and many other glass packed products.

DACRO DISC MILK CAPS

The sanitary seal for milk, cream, buttermilk and other dairy products.

* *

A complete line of machines for applying all C.C.S. Closures



ATLANTA, GA.
55 Forsyth St., S. W.

BALTIMORE, MD.
P. O. Box 1837

BOSTON, MASS.
143 Sidney St.
Cambridge

CHICAGO, ILL.
1346-1354 Northbranch St.

CINCINNATI, OHIO
212-214 E. Third St.

DALLAS, TEXAS
917 Marion St.

DETROIT, MICH.
1579 E. Milwaukee Ave.

HOUSTON, TEXAS
311 Chenevert St.

JACKSONVILLE, FLA.
McDuff & Strickland Sts.

KANSAS CITY, MO.
2814 Mercier St.

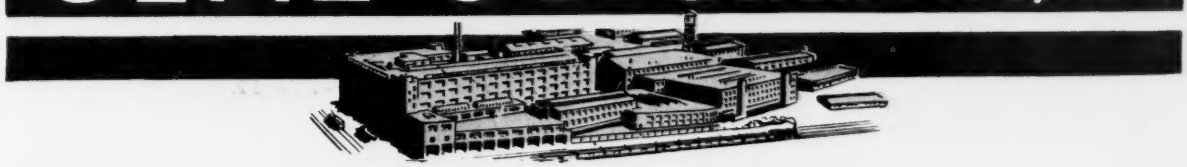
NEW ORLEANS, LA.
518 Howard Ave.

NEW YORK CITY
Bush Terminal No. 3
Brooklyn, N. Y.

ST. LOUIS, MO.
825 South 11th St.

WESTERN STOPPER COMPANY—West Coast Representative
SAN FRANCISCO, CAL.—Potrero Ave. & 25th St. LOS ANGELES, CAL.—1717 Industrial St.

SEAL CO. *Baltimore, Md.*



FOR FILLING, SEALING, WEIGHING, PACKAGING, AND WRAPPING





MATERIAL: Powders, granular products, pastes 1

CAPACITY: ½ oz. to 5 lbs.—any container

PRODUCTION: 15 to 30 per minute

OPERATORS: One

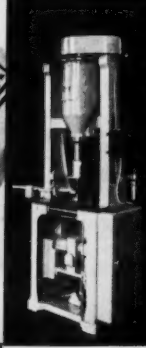
Filling by gross weight, volumetric measurement or packing.

Write for literature on

S&S UNIVERSAL FILLER







MATERIAL: Powders, granular products, pastes 2

CAPACITY: ½ oz. to 15 lbs.—any container

PRODUCTION: 10 to 20 per minute

OPERATORS: One

Filling by gross weight, volumetric measurement or packing.

Write for literature on

S&S HEAVY DUTY FILLER





MATERIAL: Powders, granular products. 3

CAPACITY: 1 oz. to 5 lbs.—cans, boxes, canisters

PRODUCTION: 20 to 60 per minute

OPERATORS: One

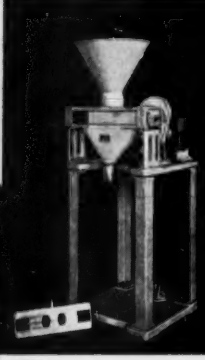
Filling by gross weight, volumetric measurement or combination of both.

Write for literature on

S&S SINGLE OR DOUBLE UNIT FILLER (AUTOMATIC)







MATERIAL: Salted and shelled nuts, tea, whole spices, flaked cereals 4

CAPACITY: ½ oz. to 1 lb.—bags, cans, boxes, etc.

PRODUCTION: 20 to 30 per minute

OPERATORS: One

Filling by volumetric measurement.

Write for literature on

S&S SIMPLIFIED VOLUMETRIC FILLER



PACKAGING MACHINERY

STOKES & SMITH Co

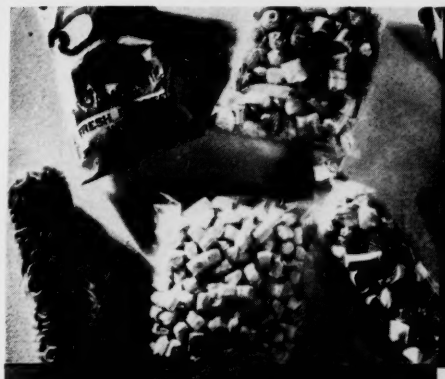
FRANKFORD PHILADELPHIA, U.S.A.

London Office:
23, Goswell Road
London, E. C. 1

Australia and New Zealand:
F. T. WIMBLE & CO., Ltd.
Sydney, Australia

XUM

THERE IS A STOKES & SMITH MACHINE DESIGNED FOR YOUR NEEDS



5 **MATERIAL:** Nuts in shells, hard candies, flaked products

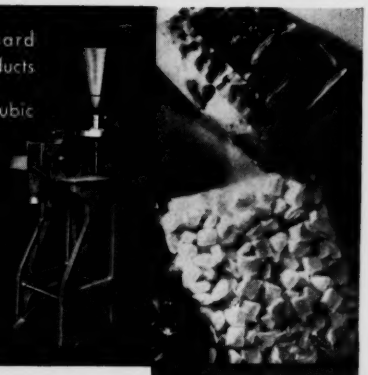
CAPACITY: 4 oz. to 1½ lbs. 220 cubic inches

PRODUCTION: 15 to 25 per minute

OPERATORS: One

Filling by net weight.

Write for literature on



S&S CONVEYOR NET WEIGHT SCALE



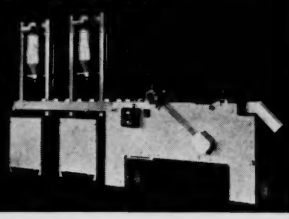
6 **MATERIAL:** Powders, cereals, seeds, chemicals, etc.

CAPACITY: Envelopes 2" to 8" high, when closed

PRODUCTION: 60 to 120 per minute

OPERATORS: None. Entirely automatic. Connects with and seals filled envelopes from powder filler or net weight scale

Write for literature on





S&S BAG AND ENVELOPE SEALER



7 **MATERIAL:** All food and grocery products in cartons

CAPACITY: Maximum carton: 10½" x 6½" x 4½"
Minimum carton: 2¼" x 1⅝" x 3¼"

PRODUCTION: 40 to 75 per minute

OPERATORS: One

Several Models. Feeds cartons, bottom seals, fills, top seals.

Write for literature on





S&S NEVERSTOP CARTON FILLER & SEALER



8 **MATERIAL:** All food and grocery products

CAPACITY: Maximum carton: 10" x 6½" x 4"
Minimum carton: 3½" x 1½" x 1"

PRODUCTION: 60 to 70 per minute

OPERATORS: One

Automatically tight-wraps carton with printed label, after it is filled and sealed, making attractive, siftless tight-wrapped package for all products.

Write for literature on





S&S AUTOMATIC TIGHT WRAPPER

Pacific Coast:
MAILLER SEARLES, Inc.
San Francisco, Calif., Los Angeles, Calif., Seattle, Wash.

STOKES & SMITH Co
FRANKFORD PHILADELPHIA, U.S.A.

PAPER BOX MACHINERY

FOR SMALL & MEDIUM SIZE TIN CONTAINERS

Consult BURDICK



Burdick cans with their clear lithography and appealing designs, are helping innumerable manufacturers to win consumer preference for their products.

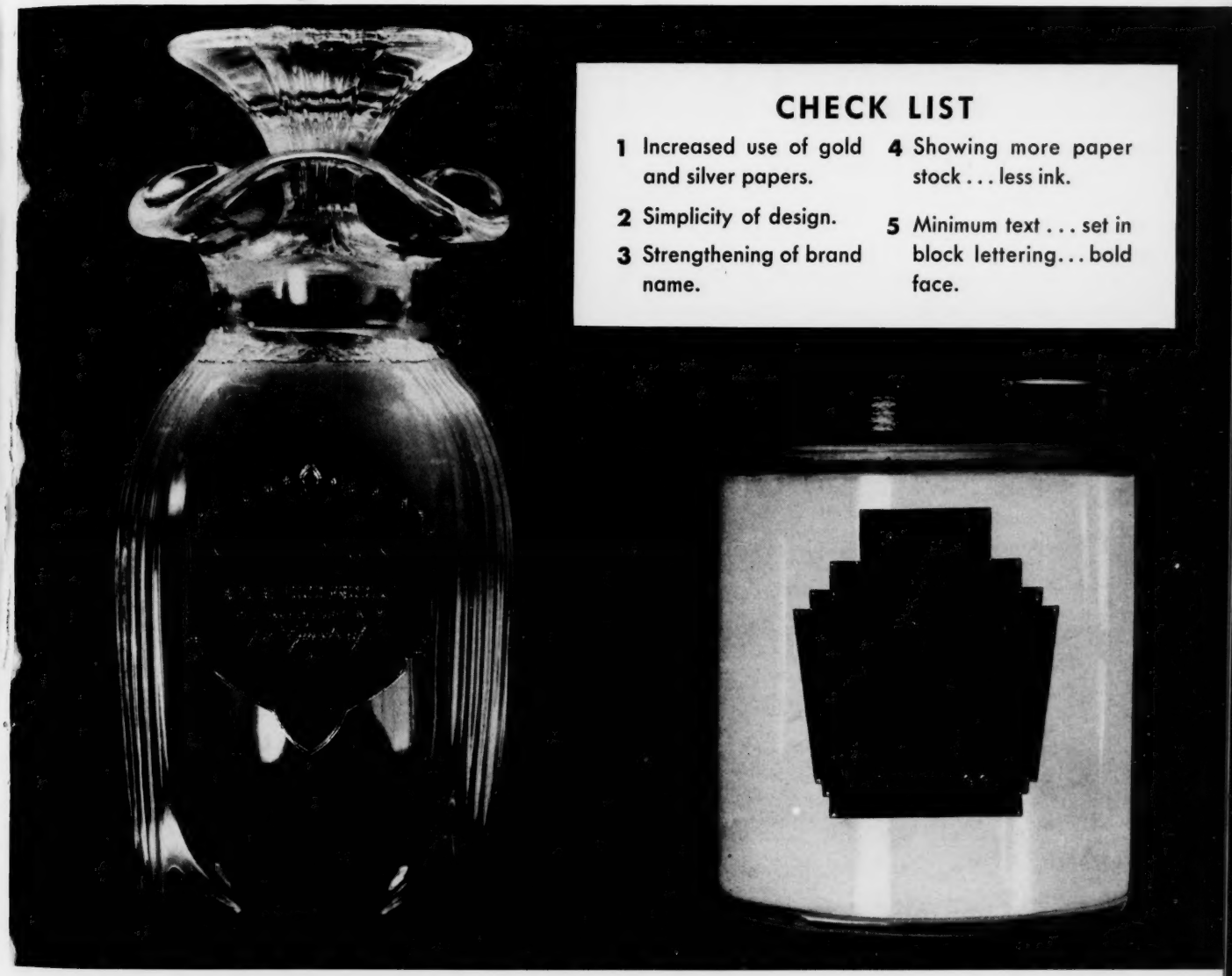
We have complete facilities for the designing and production of small and medium size tin containers. When you turn your container problem over to us, you obtain the personalized service of the entire Burdick organization in following the job thru from the origination of the design to the completion of the cans.

We can be of much help to you. May we discuss your requirements?

BURDICK & SON, Inc.
ALBANY, N. Y.



What are the Important Trends in *Gummed Seals?*



CHECK LIST

1. Increased use of gold and silver papers.
2. Simplicity of design.
3. Strengthening of brand name.
4. Showing more paper stock . . . less ink.
5. Minimum text . . . set in block lettering . . . bold face.

● Here at packaging headquarters, we have learned to observe closely all packaging trends. More important, we have learned how to distinguish the significant —the fact from the fad—the authoritative from the speculative. Most important of all, our contacts with the country's leading manufacturers have taught us one clear lesson: Packaging trends point the way to increased sales!

● And, speaking of trends—there must be some solid reasons why an ever-increasing number of manufacturers do business with Dennison. We cordially invite you to join them. At least, investigate both our position and our abilities in the packaging field. You can do it, conveniently and without obligation. Turn to the other side of this sheet for information about our FREE Package Analysis Service.

Trends in Packaging are changing constantly

Keep in touch with Dennison

SEALS • BOXES • LABELS • TAGS • DISPLAYS • *SEE REVERSE SIDE* ➡

Send COUPON for Dennison's *Packaging Problem Analysis Chart*

FOR more than 90 years we have been creating packages that help sell goods. Packages of all shapes and sizes...from the simplest to the most de luxe...in a hundred commercial fields.

Out of this experience we have learned that the first step in successful packaging is a thorough analysis of the problem. Therefore, we have developed a "Packaging Problem Analysis Chart," which—when filled in—reveals essential facts and circumstances surrounding your product and its sale. With this information before us, we can give you sound, constructive counsel on the improvement of your packaging for sales appeal.

Dennison offers you this service—free and clear of all obligation. Whatever your packaging needs may be—seals, labels, boxes, wrappings, inserts, tags—we invite you to send for our "Packaging Problem Analysis Chart." Then fill in the essential data and mail it back to us. We will do the rest.



See Dennison first
FOR BETTER PACKAGING

DENNISON MANUFACTURING COMPANY, Dept. PC-34
Framingham, Mass.

Please send us free your "Packaging Problem Analysis Chart."

NAME_____

FIRM_____

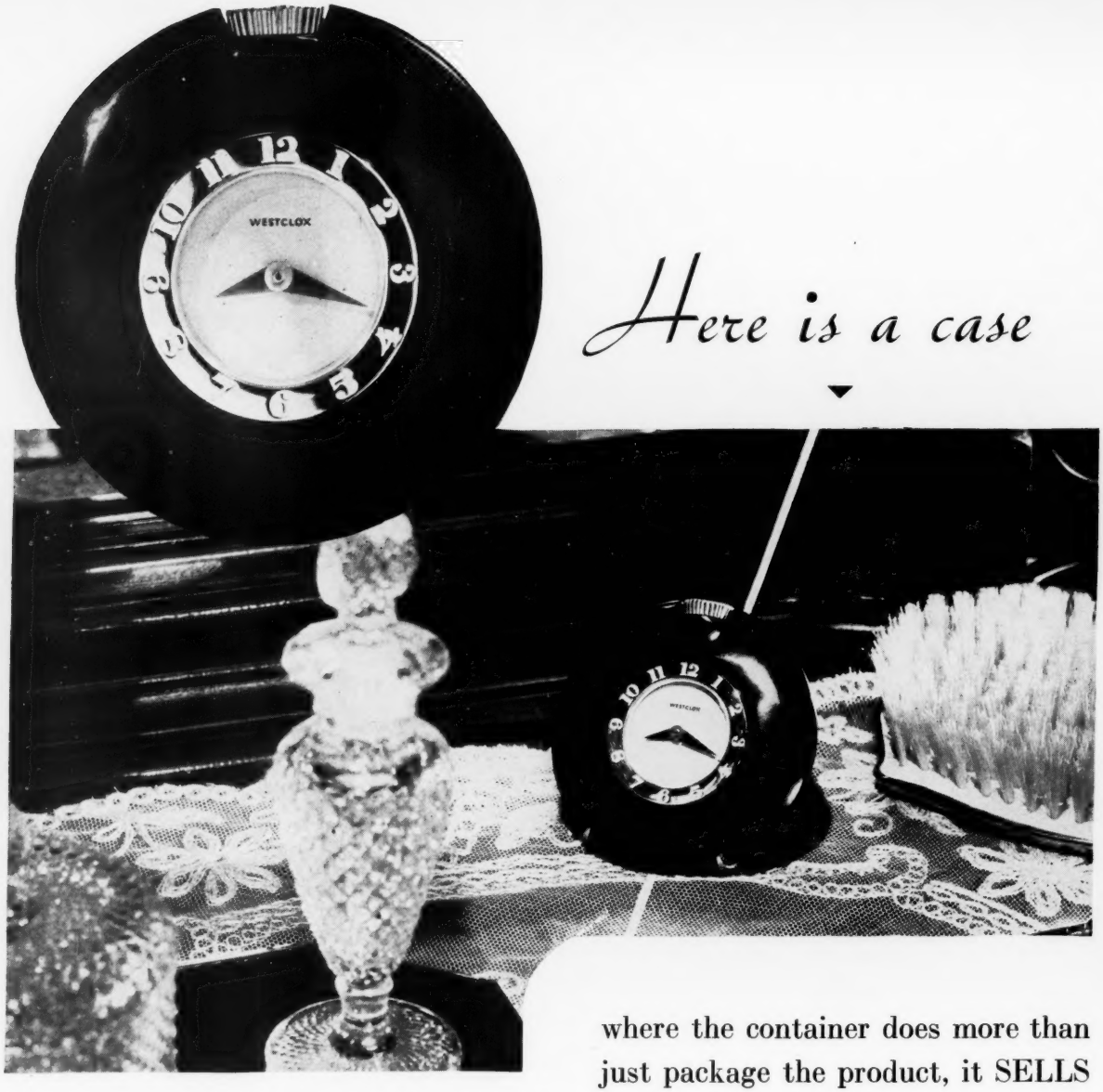
ADDRESS_____

CITY_____ STATE_____

● Whatever your business may be—Food Products, Toilet Goods, Drugs and Chemicals, Jewelry and Silverware, Textiles, Hardware, Specialties—Dennison has had practical experience in your field. Let us put that experience to work for you.

XUM


RESINOX
MOLDING RESINS • MOLDING COMPOUNDS
LAMINATING VARNISHES
Packages and products molded with Resinox command attention and stimulate sales. Resinox is odorless, water-resistant, and available in a wide variety of colors. It molds perfectly, cures uniformly, and finishes with high luster, beauty and strength.
KEEP IN TOUCH WITH RESINOX DEVELOPMENTS
RESINOX CORPORATION
Subsidiary of Commercial Solvents Corporation and Corn Products Refining Company
230 Park Avenue, New York City



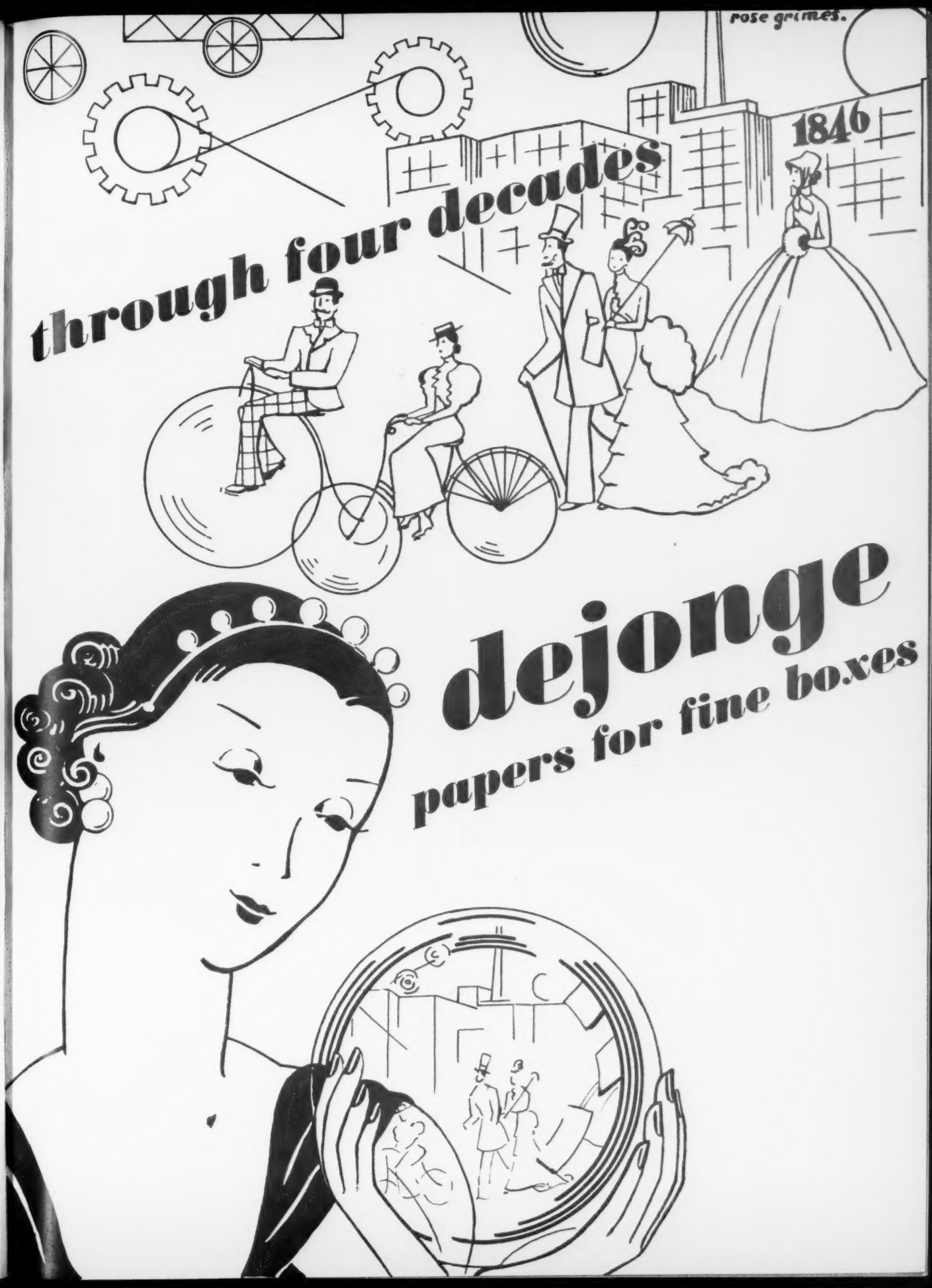
Here is a case

where the container does more than just package the product, it SELLS it!!! And that is the very essence of good package design.

If sales of your product are "off," analyze your package carefully. There may be the answer to increased sales. Proper packaging exerts a powerful influence on the sale of a product.

Our Merchandising Design Department is ready to assist in solving your packaging problems. Write for our Booklet.

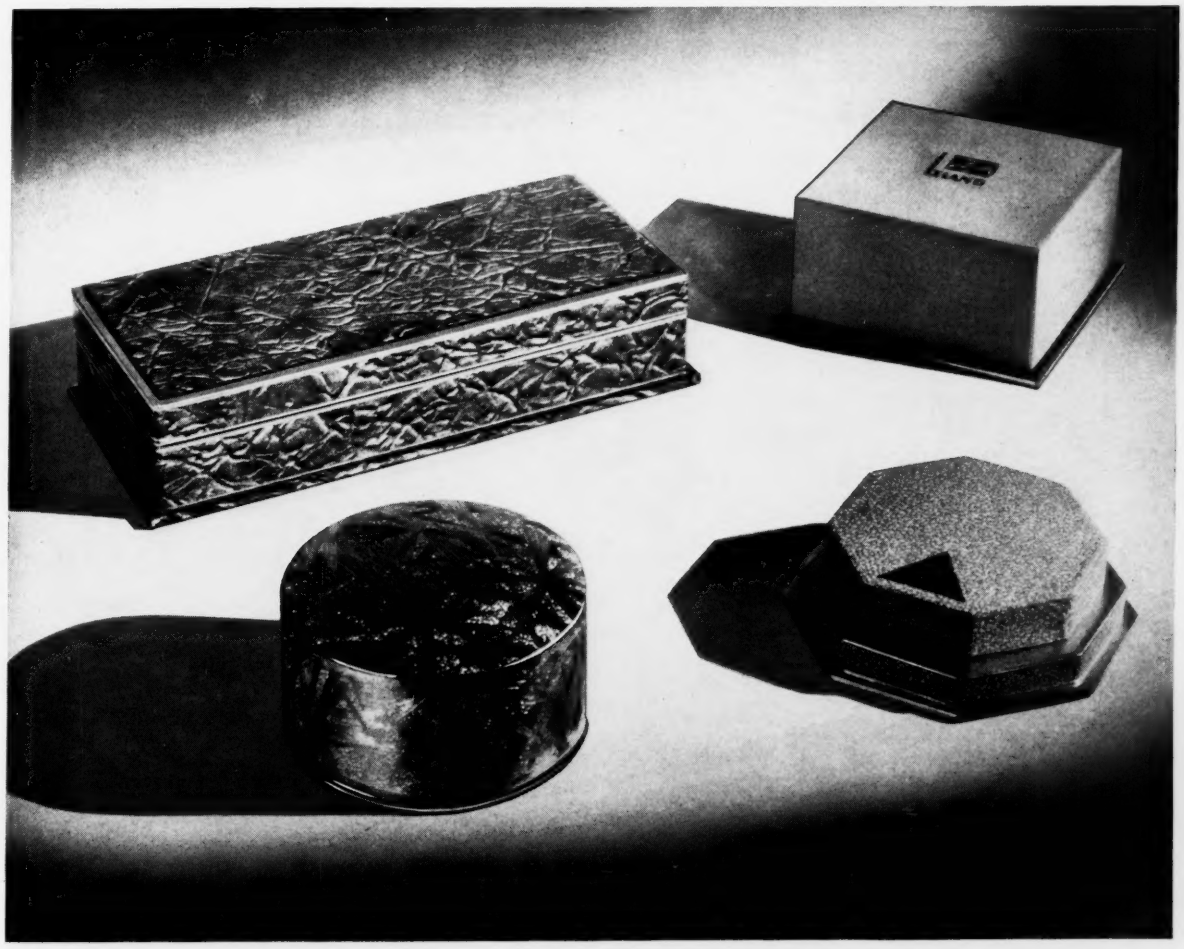
CHICAGO MOLDED PRODUCTS CORP.
2154 Walnut St., Chicago, Ill.


rose grimes.
1846
through four decades
dejonge
papers for fine boxes

F. N. BURT COMPANY, LTD.

Manufacturers small fine paper boxes

Designing Department for designing new packages and redesigning old ones. We are interested in your packaging problems.



F. N. BURT COMPANY, LTD.

514 SENECA STREET — BUFFALO, NEW YORK

◀ REPRESENTATIVES ▶

NEW YORK CITY TERRITORY
C. M. Boscowitz
H. H. Boscowitz
17 W. 44th Street
New York City

CHICAGO TERRITORY
C. A. Hammond
919 N. Michigan Ave.
Room No. 2203
Chicago, Illinois

OHIO TERRITORY
W. G. Hazen
P. O. Box 2445
East Cleveland, Ohio

CANADIAN DIVISION
Dominion Paper Box Co., Ltd.
Toronto, Canada

PENNSYLVANIA TERRITORY
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SOUTHERN TERRITORY
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2150 Washington Ave.
Apartment 17
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NEW ENGLAND TERRITORY
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XUM

PLASKON
molded color

For Closures, Containers and Merchandise from Buttons to Radio Cabinets

Its use in many and diverse fields has proven synonymous with increased sales!

Plaskon is a powdered urea-formaldehyde compound, produced in the widest range of translucent stock colors, and lending itself readily to modern design and molding procedure.

Because, in addition to its color range, it offers users a lightweight, strong and enduring plastic product—grease-, water-, and acid-proof, tasteless and odorless—it has rapidly found its way into a broad field of uses.

when you think of packaging

think first of Plaskon

TOLEDO SYNTHETIC PRODUCTS · INC.
TOLEDO · OHIO

XUM



Distinctive Beauty

Never before has such a beautiful finish been attained in metallic papers of any kind as is presented in Metaloid . . . note the fine smooth texture, the lovely satin lustre, and in addition to the popular natural shades of Gold, Silver and Copper, Beveridge-Marvellum have created eight entirely new, delicate *Metallic Tints* . . . whether used as a label, seal, box cover, wrap or packaging of any kind, Metaloid will add prestige and distinction to your product . . . these surfaces are durable, too . . . waterproof, greaseproof, dustless, nontarnishing and are made with the fastest colors . . . Metaloid is produced by manufacturers exclusively of Pyroxylin Coated Papers . . . working sheets of gummed or ungummed gladly sent upon request.

BEVERIDGE-MARVELLUM CO., HOLYOKE MASSACHUSETTS

Manufacturers Exclusively of Pyroxylin Coated Papers

DISTRIBUTED BY FINE PAPER MERCHANTS FROM COAST TO COAST

This insert is printed on METALOID, *light copper*



The **CAP** *is a big part of the* **SHOW**

● The show must go on—and does go on—for your products in daily display before thousands of prospective buyers. To win your share of sales—to have your packages become headliners on counter or shelf—you should remember that the cap plays a big and important part.

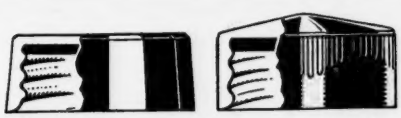
The Closure Service Company—experienced designers of every type of closure in metal or molded materials—offers a *complete* capping service geared to fit changing scenes in today's new era. Consult with us at once. Let us show you the variety of effects obtainable through skillful use of color and design, as well as the many practical features of our closures that contribute to better, more efficient sealing service for every style of container at low cost. The Closure Service Company, Toledo, Ohio.

NRA MEMBER U.S. WE DO OUR PART

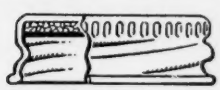
THE CLOSURE SERVICE COMPANY, TOLEDO, OHIO



Diagram shows the Caseal Cap's patented two-piece metal construction—with interlocking rolled edge to prevent slipping.



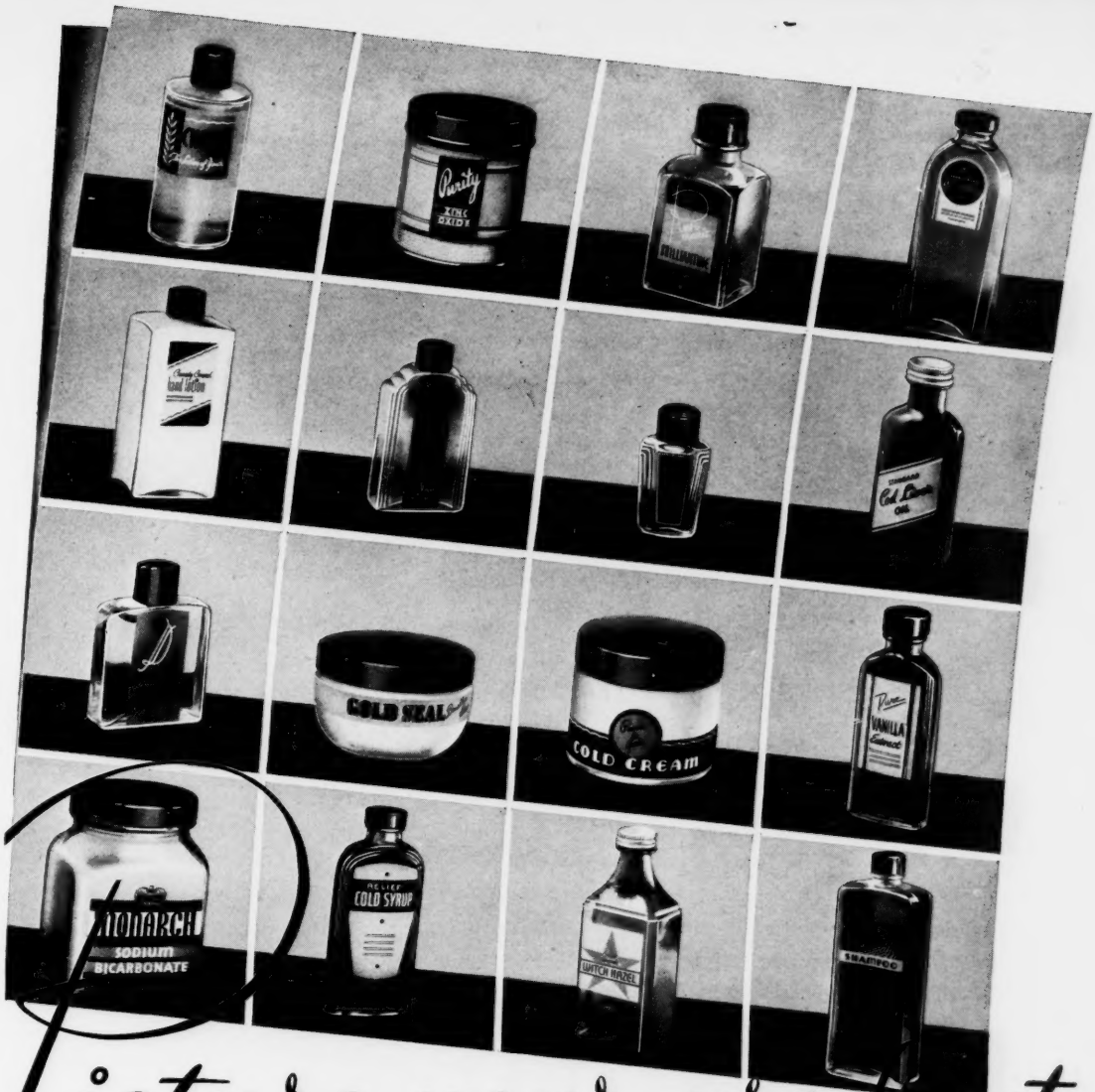
Moderne and Smartop, molded closures of modern design constructed to reduce breakage to minimum.



The specially designed continuous thread, a distinctive feature of the single shell cap, seals tightly —opens easily.


NRA
MEMBER
U.S.
WE DO OUR PART
Shown Right-
Food sells on Sight
● Here's how *showing your product right* steps on the sales accelerator. Food products—smartly labeled in flawless, sparkling *OnIzed* containers—compel attention. The careful preparation and full natural richness of the food are shown clearly, temptingly, invitingly. Customers see your product—want it—buy it.
With scores of shapes to choose from . . . newest designs constantly available . . . and helpful service always at your call, Owens-Illinois is unusually well-fitted to meet your food packaging requirements. Write at once for detailed information . . . Owens-Illinois Glass Company, Toledo, Ohio.
OLIVES
VINEGAR
HORSE RADISH
Catsup
PEANUT BUTTER
MAPLE SYRUP
CHILI SAUCE
SWEET PICKLES
Coffee
OnIzed
FOOD CONTAINERS
OWENS-ILLINOIS

XUM



Picture your product in one of these GLASS CONTAINERS

NRA MEMBER U.S.
Onlzed
PHARMACEUTICAL AND PROPRIETARY WARE

● Try this simple test—it may change red figures on your books to black. Just picture your product in one of these modern stock containers. Note the clear, lustrous beauty of the *Onlzed* glass, in smart new designs. Visualize how forcefully this container—attractively labeled—would stand out on counter or shelf to win hesitant consumer dollars. Decide to do it—to give your product a head start toward leadership in a brand new *Onlzed* container.

Owens-Illinois Glass Company, Toledo, Ohio.

OWENS-ILLINOIS



Onlzed corrugated containers solve shipping problems— *and save you money*

Onlzed corrugated shipping cartons—available in all standard shapes and sizes for all types of products—are scientifically constructed for safe and economical shipping. Every feature of their design is developed to combine great strength with light shipping weight at low cost. The carton walls are finished with a hard, smooth surface for clear printing. Let us solve your shipping problems—and *save you money*. With *Onlzed* extensive service facilities, your orders will receive prompt and careful attention. Write for information. Owens-Illinois Glass Company, Toledo, O.

Onlzed CONTAINERS

OWENS-ILLINOIS

PACKAGING DIVISION

XUM



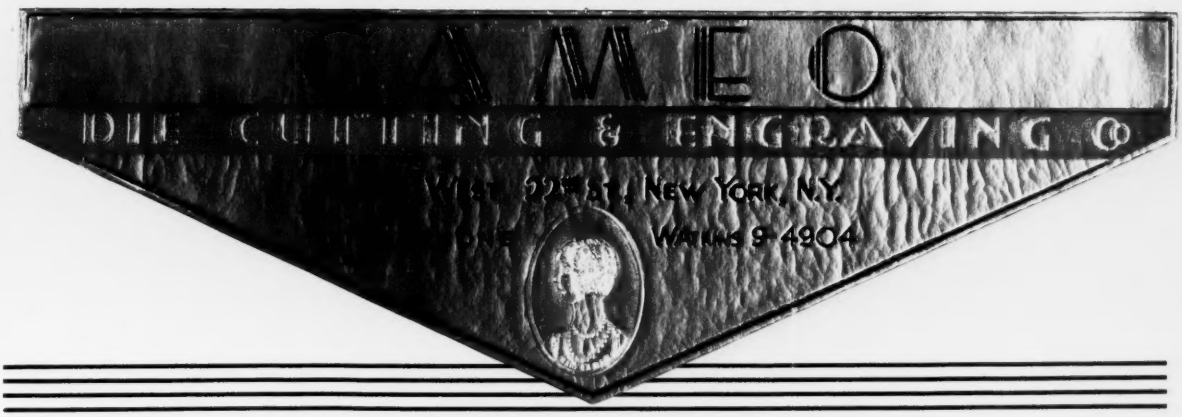
CAMEO

Serves Every Packaging Field

and Serves them Singularly Well

IN EVERY field of industry where fine labels are required, you will find the products of the Cameo Die Cutting & Engraving Company. Cameo ideas, Cameo quality and Cameo experience are serving hundreds of manufacturers in the food, cosmetic and bottling industries.

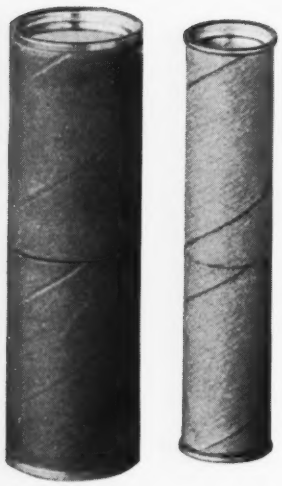
We invite other manufacturers equally proud of the appearance of their products to avail themselves of Cameo Service in the design and planning of their labels and seals.



THE CLEVELAND CONTAINER CO.

10421 BEREA ROAD — CLEVELAND, OHIO

PLANTS—CLEVELAND DETROIT NEW YORK PHILADELPHIA
SALES OFFICES—DAYTON HARTFORD PITTSBURGH ROCHESTER CHICAGO





CLEVELAND Containers include a complete line of spiral-wound fibre cans and tubes in a range of sizes and types to meet every need for packaging, mailing, winding and protection. They are strong, rigid, durable and economical.

Cleveland spiral-wound fibre cans can be had with fibre tops and bottoms; metal tops and bottoms or a combination of both; they can be had with plain or fancy paper covering or for wrapping with your own labels. Any type of closure can be supplied on Cleveland Containers—sifter tops, pour spouts, friction plug tops or slip-cover tops, etc.





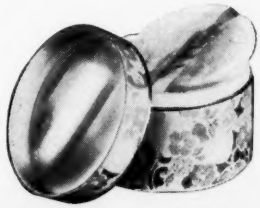
Sizes of the spiral-wound containers range from $\frac{1}{8}''$ to $7\frac{1}{2}''$ inside diameter, while tubes can be supplied in diameters from $\frac{1}{8}''$ to $16\frac{1}{2}''$, in any desired length. Parallel wound containers and tubes can be had in diameters from $\frac{3}{8}''$ to $7''$, in any length, with wall thicknesses from 4/1000″ to $\frac{1}{2}''$ or greater.





Special Containers. We will be glad to cooperate with you in the design and development of new and special containers for special products or needs. Our packaging engineers have often helped our customers to package their products more economically—and this service is yours for the asking.





XUM



For the Men Who Plan Cartons and Display Containers

WHETHER your problem be

carpet tacks	rice	aspirin	kitchen utensils
ball bearings	tea	washing powder	liniment
radio tubes	coffee	pancake flour	grass seed
spark plugs	toys	drum sticks	snuggle rugs

CAMPBELL cartons and displays are on the job for you twenty-four hours a day—your silent salesmen. No eight hour shifts there.

Best quality material and workmanship backed by over forty years' experience AND an eager willingness to work with you to find the carton best suited to your needs—that's CAMPBELL service.

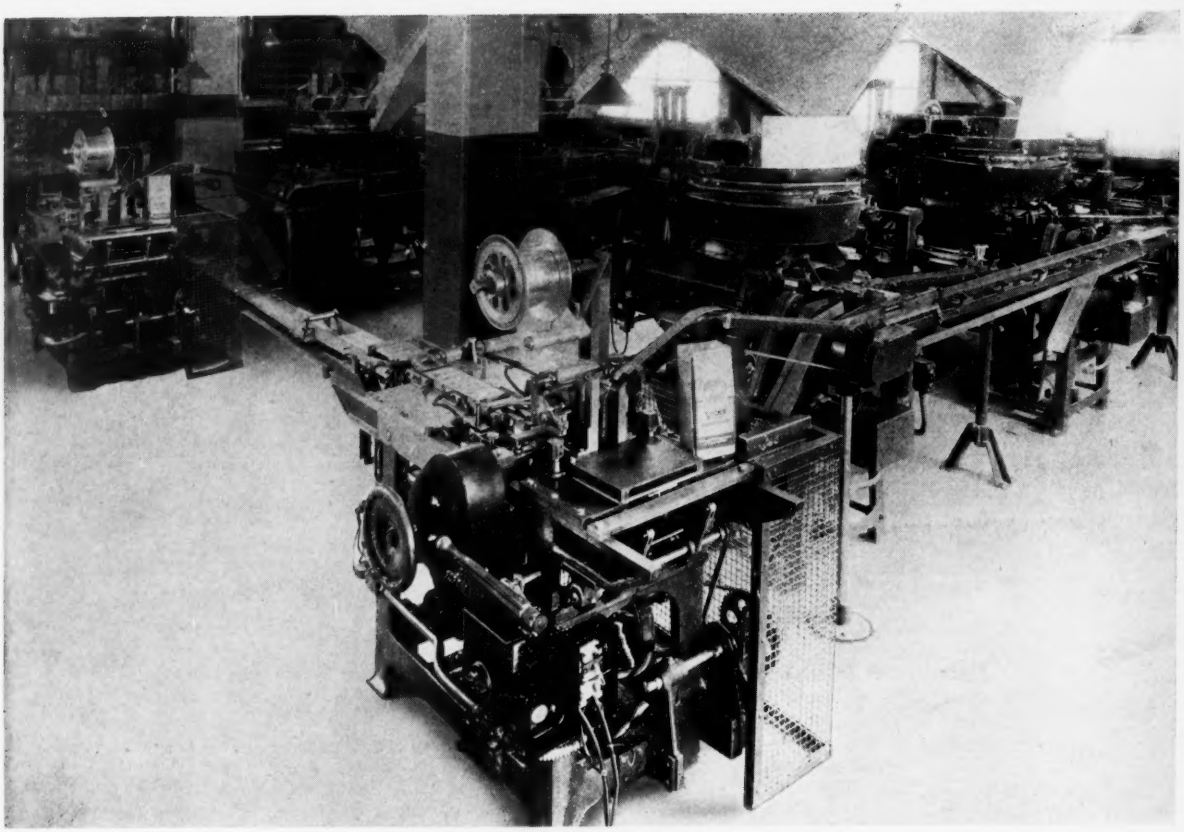
Samples and quotations gladly submitted without obligation. Just send in your specifications.

Campbell and TAG BOX Company

South Bend, Indiana

903 SOUTH MAIN STREET





TWO COMPLETE PACKAGING LINES

Making an outstanding package of Vick's Cough Drops. Each line is a combination of two Model C-10 Complete Packaging Machines, and one Model W-5 High Speed Cellophane Wrapping Machine, working synchronously and producing 130 packages per minute with three (3) operators to each line.

ADDITIONAL PRODUCTS

Full Automatic Bag Filling Machines for single or duplex, glassine or Cellophane bags—1½ oz. to 16 oz.

Carton Lining and Filling Machines.

High speed Wrapping Machines using wax paper, glassine or Cellophane.

Counting or weighing, or volumetric measuring, also circular inserting in combination with Lining and Filling Machines.

Bundling Machines.

This installation will pass nearly 100 per cent in efficient operation, outstanding appearance of the package, low up-keep, and minimum waste in packaging.

Your inquiries are respectfully solicited.

CARTONING MACHINERY CORPORATION
MAIN OFFICE & PLANT:
NEWPORT, R. I.
NEW YORK OFFICE: 90 WEST STREET, NEW YORK CITY



ROYAL-REFLEX BLUE

"RICH, NOT GAUDY"

Fent-Onamel

FENT-ONAMEL Royal-Reflex Blue is the first color in years that's distinctively different. It has not glitter or glare; but Iridescence.

Just look at that color! See the fire in the blue! Hold the labels up to the light. They radiate luster with every move and turn.

Royal-Reflex Blue will not tarnish, nor lose its luster. It is color with character, and costs much less than the ordinary kind.

Samples and prices freely submitted.

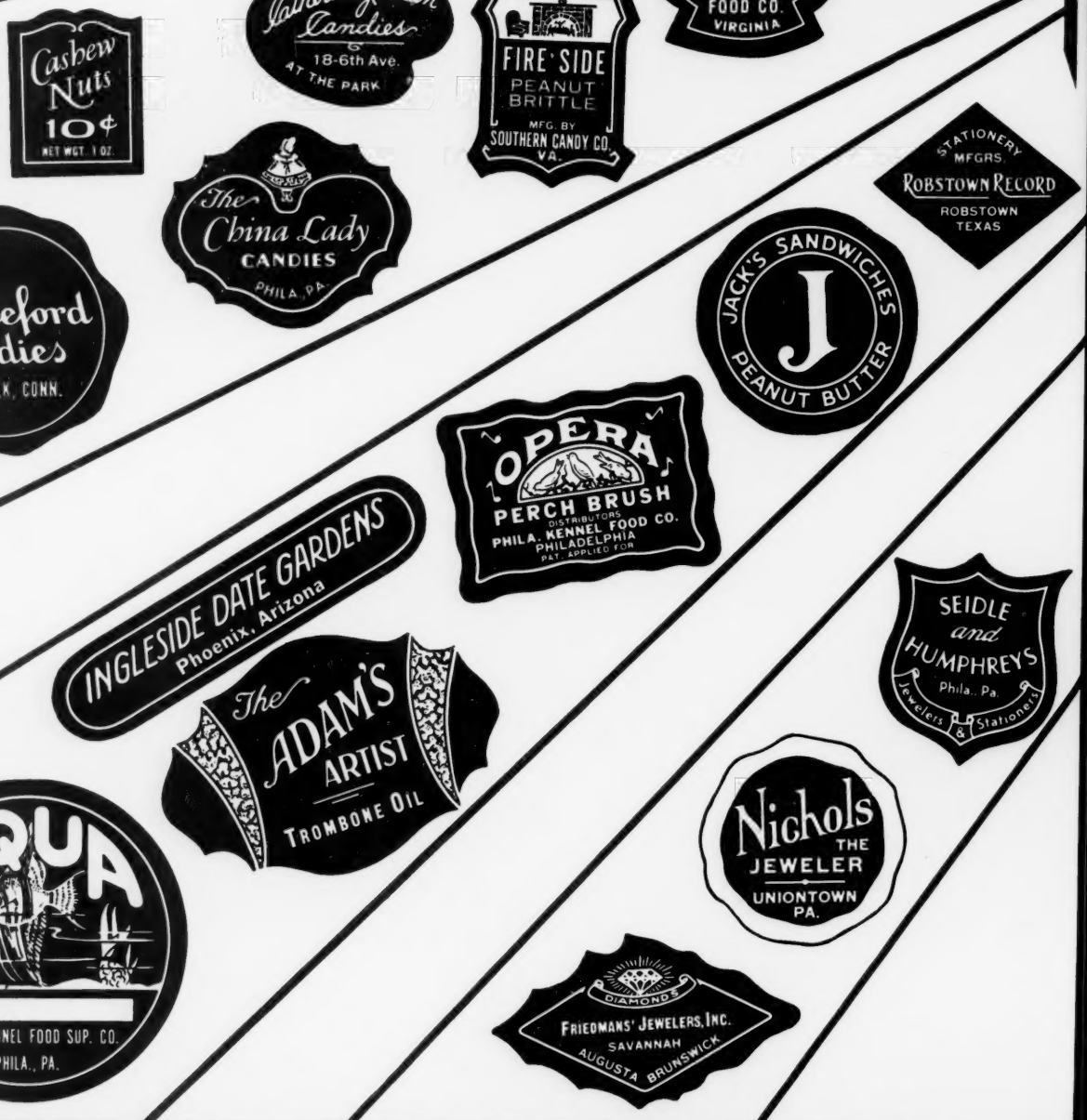
FENTON LABEL COMPANY, INC.

506-12 RACE ST. PHILA., PA.

WILL SELL FOR CO-Y

XUM

ROYAL-REFLEX BLUE



FENTON LABEL
506-512 RACE ST.

XUM


WILL SELL FOR YOU!
La Grace
SKIN
CREME
SIANI LABORATORIES
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Crotons
BATH
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Oil of Roses
an exquisite dressing for the hair
WHITE PALACE
BEAUTY PARLOR
Violet
Bouquet
MFD. BY
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ART SHOPPE
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COLD CREAM
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Plummer's
ART SHOP
MELROSE
MASS.
LEARN TO DANCE
AT
J. MANN'S
PRIVATE DANCE STUDIO
4740 RISING SUN AVE.
SYLVAN ALLOY
SYLVAN DENTAL
COMPANY
BOSTON, MASS.
COMPANY, INC.
PHILADELPHIA, PA.

Fent-Onamel

ROYAL-REFLEX BLUE

GUMMED ADDRESSING LABELS





MADE ALSO IN RADIANT RED OR GLISTENING GREEN.

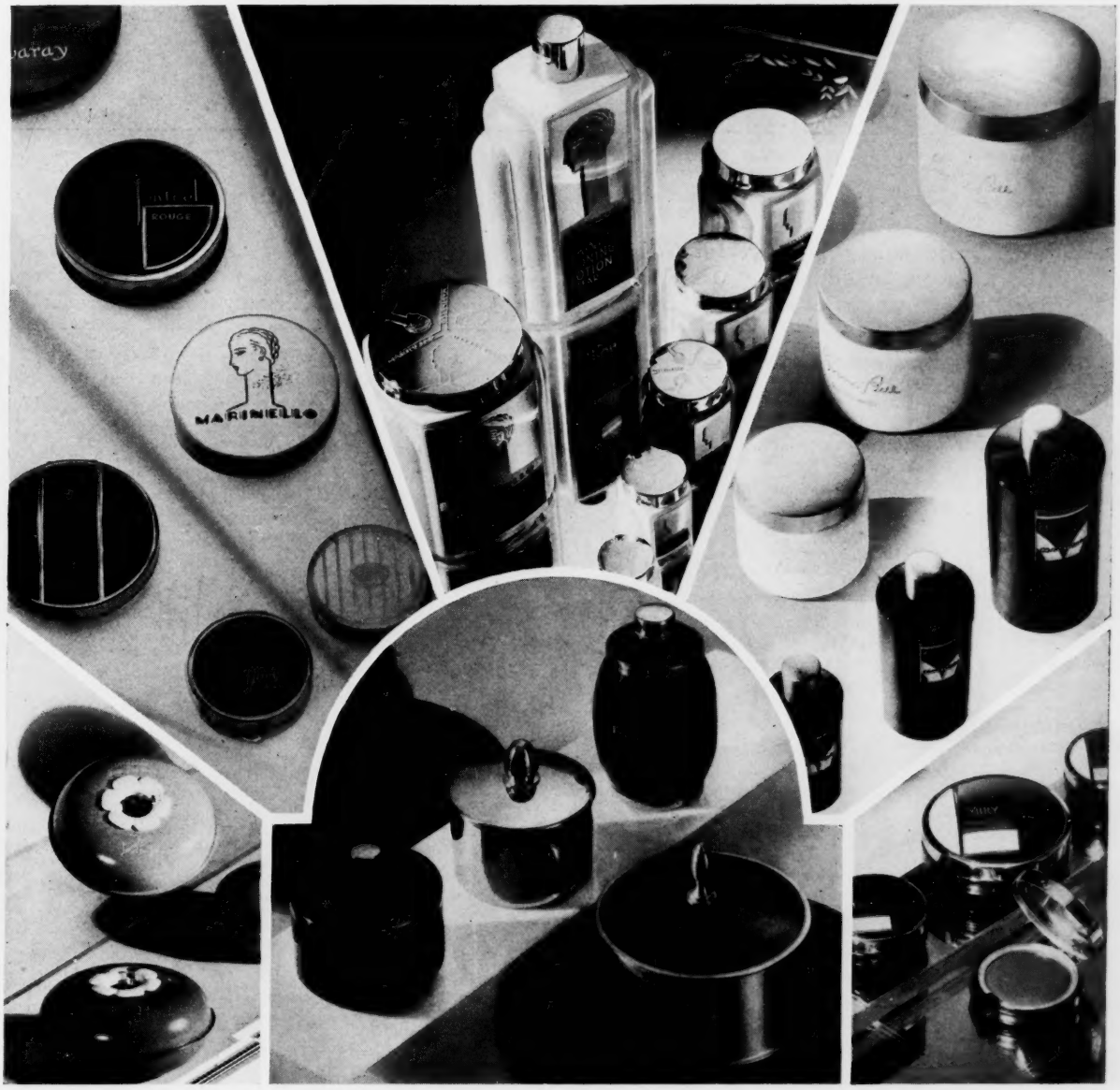
Samples and prices freely submitted.

FENTON LABEL COMPANY, INC.

506-512 Race St., PHILADELPHIA, PA.

XUM

JEWEL-GLO CAPS AND CONTAINERS GIVE DISTINCTION TO THE PRODUCT



EQUIP YOUR PRODUCTS with packaging that wins attention and arouses desire-to-buy at the point of sale. With *Jewel-Glo* metal closures and containers the opportunities to create sales-stimulating packages are almost endless. To appreciate *Jewel-Glo*, you must see its lustrous finishes, its soft satiny effects and its unique color combinations. Many successful manufacturers of quality products have chosen this lovely metal for their packages. • Let us show you how *Jewel-Glo* can be adapted to your own needs. Our designers are packaging specialists—*at your service.*

CHASE BRASS & COPPER CO., INC.

CONTAINER AND CLOSURE DIVISION

200 FIFTH AVENUE • • • NEW YORK CITY

ARTHUR COLTON COMPANY

DETROIT, MICHIGAN

GENERAL OFFICES: **2600 East Jefferson Avenue**

PLANTS
2600-2628 East Jefferson Avenue
300-388 Chene Street
2601-2629 Franklin Street

Designers and Builders of:

Pill, Tablet, Globule and Suppository Making Machines
Collapsible Tube Filling, Closing and Clipping Machinery
Cigar Banding and Wrapping Machinery
Tablet and Pill Counting and Boxing Machinery
Can, Jar and Bottle Filling Machines
Tube Clips
Candy Mint Wrapping and Labeling Machines
Special Machinery to order

The illustration and descriptive matter below refer to the latest development in Collapsible Tube handling:

THE COLTON CLOSURE:

A new method of sealing a collapsible tube, eliminating the clip entirely and giving a more decorative appearance with greater security to the contents.

It is completely formed on these new Colton Tube Fillers and Closers by making the two usual double folds, making a third fold in the reverse direction, and then securing and giving more rigidity to the folds by corrugating the folded end. Both sides of the tube have exactly the same appearance on the folded end.

Adoption of the Colton Closure is an investment which pays you dividends immediately, through saving in time, labor and material.

No more clips to buy.
No clip stock to carry.
No clip wastage.
No clip corrosion.
No stops to replenish clip rolls.
No maintenance expense on automatic clipping heads.
Continuous production.
Reduced overhead.
Better appearance.
Added security to the tube contents.

AUTOMATIC POWER-OPERATED MACHINES:

We offer a complete line of automatic power-operated machines for producing the Colton Closure at speeds from 40 to 120 tubes per minute.

No. 17—Automatic Machine handles tubes up to 1½″ x 7″. It will fill materials in semi-fluid and paste form cleanly, uniformly, and no wiping of the tubes is required. After filling, the tubes automatically pass to the folding and crimping jaws where the closure is completed. The tubes are then automatically ejected onto the conveyor shown. The conveyor is adjustable to suit the height of finishing tables or cartoning machine feeds.

The machine is easily adjustable from one size tube to another by changing tube holders, nozzle, etc., to suit tube diameter and length.

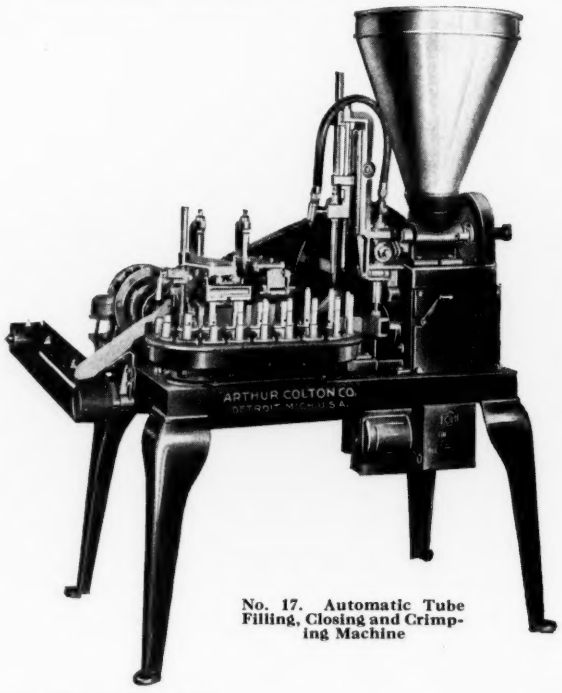
This machine is furnished complete with motor equipment.

No. 18—Automatic Closer and Crimper—Same as No. 17 but without filling unit. This machine is recommended where frequent change from one material to another is necessary. Tubes can be filled on separate fillers and the Colton Closure completed on this machine.

No. 19—Automatic—Same as No. 17 except that a filling unit suitable for fluids is furnished.

No. 7—Automatic—A larger machine than No. 17, handling 50 to 60 tubes per minute, filling, folding and crimping two at a time.

No. 16—Automatic—For large production only. Fills, folds, crimps and ejects four tubes at a time. Capacity from 75 to 120 tubes per minute.



No. 17. Automatic Tube Filling, Closing and Crimping Machine

SPECIFICATIONS:

Capacity per minute	40–50 tubes
Power required	¾ H. P.
Floor space	52 in. x 32 in.
Net weight	(Approx.) 1270 lbs.
Gross weight	(Approx.) 1480 lbs.
Boxed for export	(Approx.) 50 x 36 x 60 in.

We are the largest makers of Pharmaceutical Machinery and Tube Filling and Closing Equipment in the world. Our line embraces over two hundred machines designed to facilitate the making and packing of practically all medicinal products and toilet goods. We also design and build all kinds of special purpose machines.

Write for Catalog "P."

XUM

SOME OF THE PRODUCTS OF---

America's Most Complete Packaging Service

★ FOLDING CARTONS

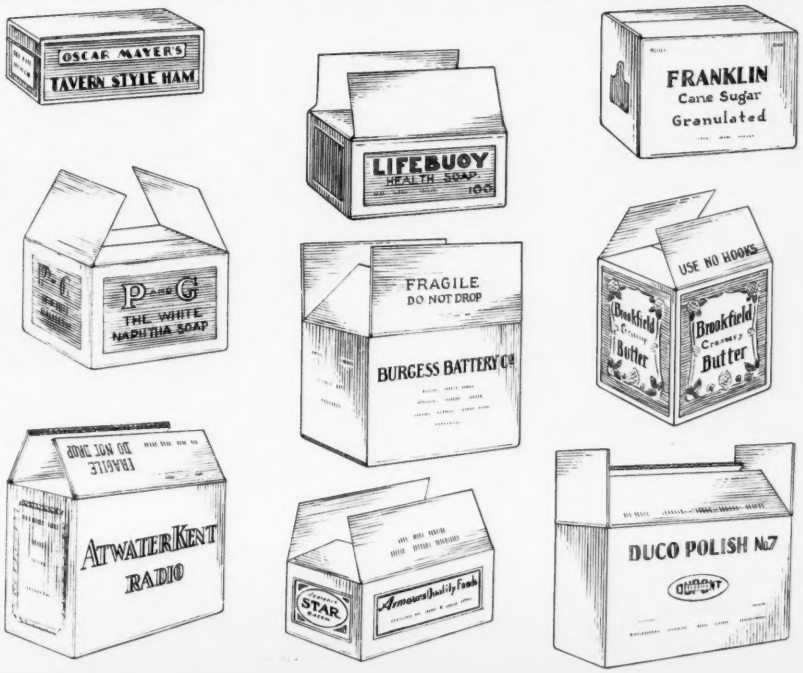
The successful folding carton requires skill in manufacture and design, to develop *eye appeal* and *selling power.*

In the physical features of the carton, the first requisite is the board itself. It must be the correct weight and grade. It must fold without cracking; must print well. Die cutting and gluing must be faultless—so that the carton will run through high speed packaging machines.

Printing must be of the finest, often in process colors. Inks must be carefully selected and mixed, to provide the most satisfactory printing for the particular board.

CONTAINER CORPORATION offer the finest in skill and equipment for producing folding cartons—from a tiny razor blade carton to a large pillow box.





★ SHIPPING CONTAINERS

Shipping containers must be strongly constructed, of adequately rigid materials. The well made container is carefully and accurately slotted. There must be a strong adhesive bond between the component parts of the combined board.

In printing, great care must be taken. For corrugated containers soft rubber dies are used to prevent weakening of the combined board through unnecessary crushing.

All CONTAINER CORPORATION corrugated and solid fibre shipping containers are made from cylinder-formed linerboard—proved by test to be up to 30% more rigid than any board not made by the cylinder process.

Write today for data on the complete Container line of cartons, containers, boxboard, etc.

CONTAINER CORPORATION OF AMERICA

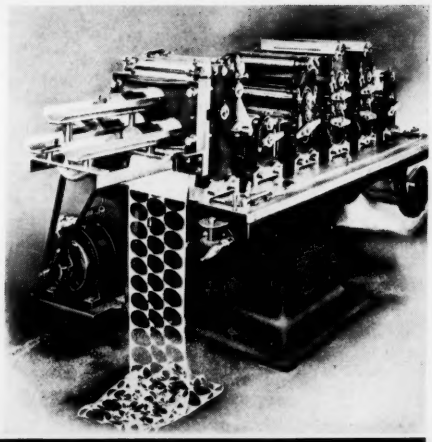
Chicago New York Philadelphia Pittsburgh Cleveland Cincinnati Indianapolis
St. Louis Bridgeport, Conn. Natick, Mass. Minneapolis Anderson, Ind. Wabash, Ind.

GENERAL OFFICES: 111 W. WASHINGTON ST., CHICAGO

NRA MEMBER U.S. WE DO OUR PART

AUTOMATIC LABEL PRODUCTION MACHINERY

for Manufacturers



CHAMBON

Chambon Automatic Machines for producing labels and cartons fit into the production line and turn out, automatically and continuously, the same printed job a million or a hundred million times without variation in size, color, register, or cost.

Firms such as Beech-Nut Packing Company, Colgate-Palmolive-Peet Company, Mono Service Company, Federal Match Company, and others have recognized the economies of Chambon Automatic Label Production Machines.

The quality of work is predetermined—built into the machine. Uniform results are achieved by making each operation automatic, eliminating the need for skilled operators. The cost of the finished label, wrap, carton, etc., can be determined in advance as accurately as the cost of other manufacturing operations. Actual figures show astonishing savings over previous costs.

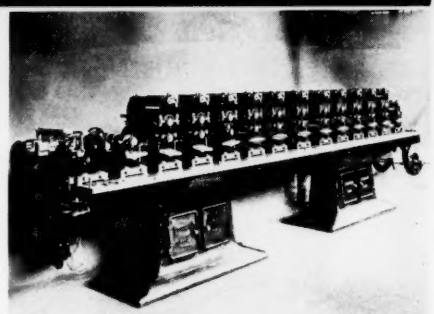
Chambon Machines are compact, requiring a minimum amount of floor space as compared with larger, heavier equipment. They are adaptable to various methods of multi-color printing from a single roll of paper. All supplementary operations such as scoring, sheet-cutting, perforating, slitting, rewinding, etc., are performed at the same time.

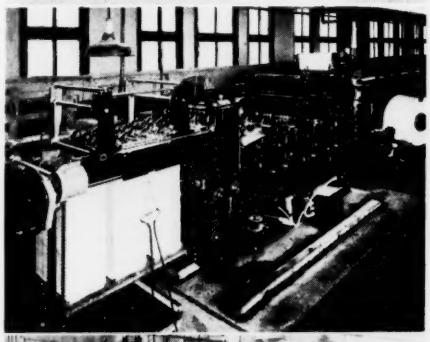
To manufacturers interested in controlling quality and reducing label production costs we shall be glad to furnish full details about Chambon Automatic Label Production Machines.

Chambon Corporation

MAIN OFFICE & PLANT
917 NEW YORK AVENUE
UNION CITY, N. J.

WESTERN OFFICE
608 SO. DEARBORN ST.
CHICAGO, ILL.



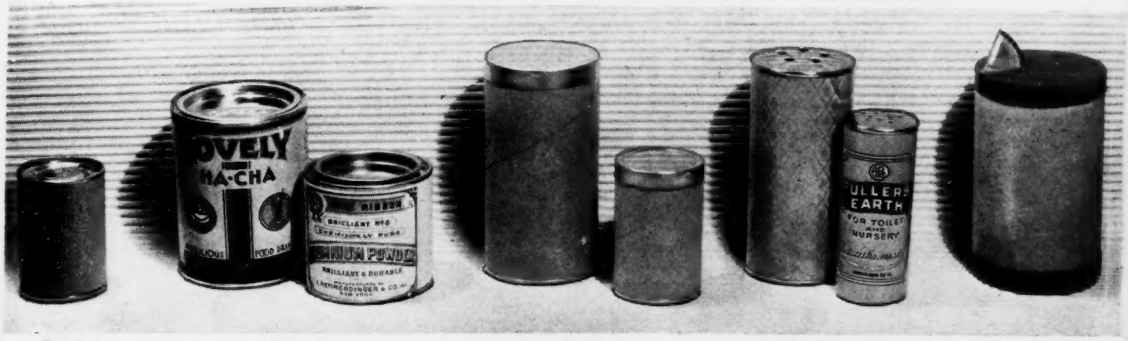




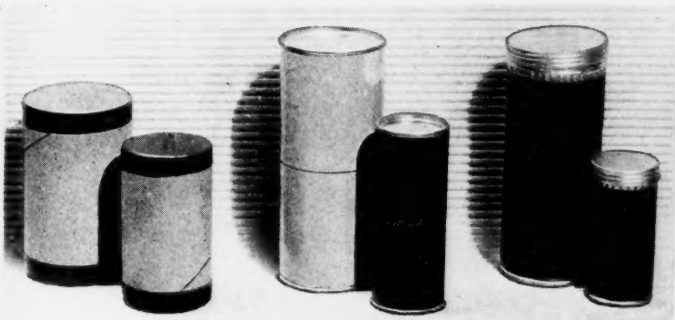
Top to bottom, illustrations show: A Chambon Machine which prints and die-cuts multi-color labels, a large Chambon Multi-color Printing Machine, a Chambon Machine for producing labels printed two sides, and an installation of twenty Chambon Label Production Machines in a single plant.

XUM

UTILITY CONTAINERS BY CROSS



Dredge-Wheel Type | Friction Plug Top | Tin Slip Top Dry Drug Packers | Revolving Sifter Top | Aluminum Pouring Spout



Flush Covered Paper Box | Cross Pilfer-Proof Mailers | Screw-Top Mailers



Paper Box Specialties





Our line of manufacture includes a variety of paper cans and composite cans for insecticides, chemicals and various other food products.

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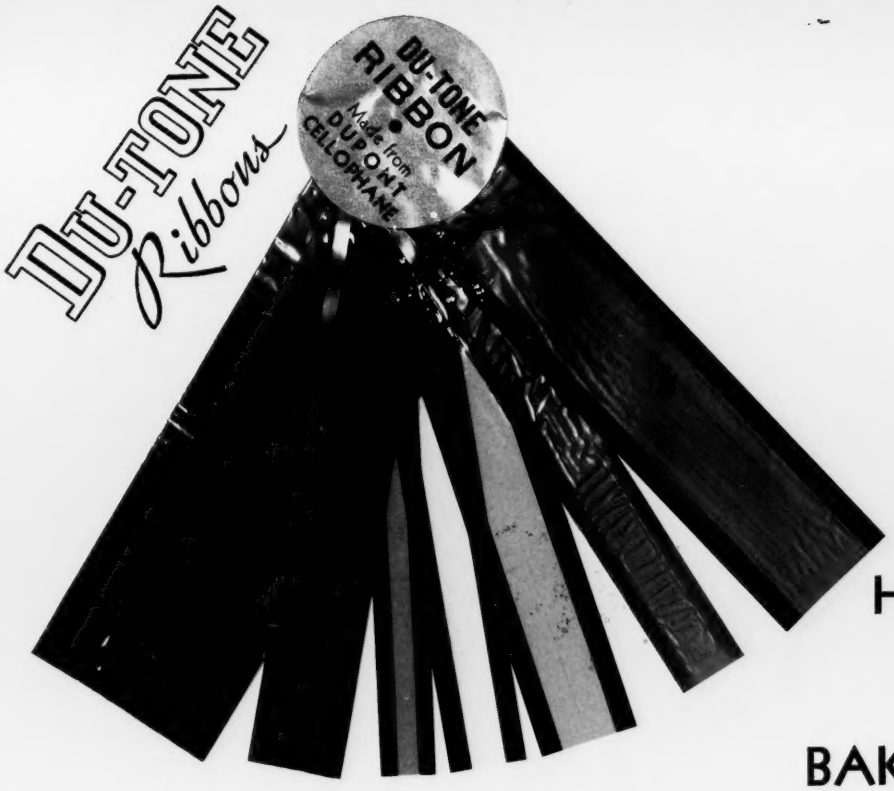
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Maryland **BLUE** *Bottles*

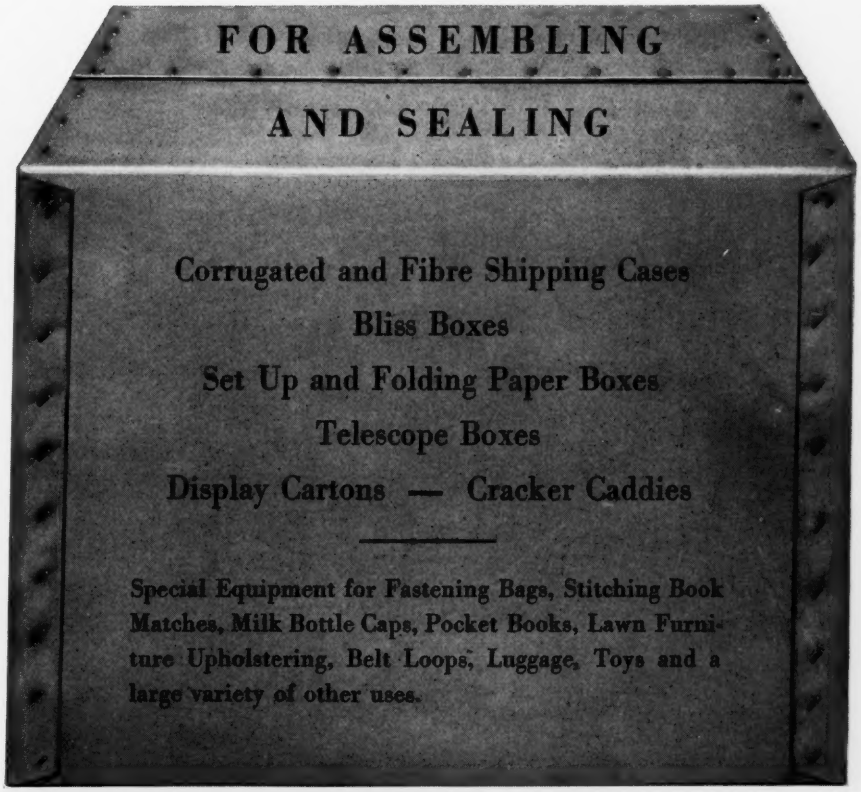
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BOX STITCHERS

BLISS HEAVY DUTY BOX STITCHER

The Bliss Box Stitcher is built for heavy duty work on all grades and thicknesses of boxboard used for corrugated and solid fibre shipping containers; also suitable for all kinds of telescope containers, suit boxes, folding boxes, set-up boxes, cracker caddies, display boxes, etc. Adaptable for stitching paper bags, bag handles and various other specialties.

The Bliss Box Stitcher will form and drive as many as 500 stitches per minute. The only limitation on production is the ability of the operator to handle the stock through the machine. Speed of machine may be varied to suit the nature of work by changing the motor pinion.



Fig. 1. Bliss Box Stitcher

Clearance between the stitcher head and clinching anvil is $1^5/_8$″, a valuable feature facilitating insertion of heavy work and aiding visibility.

The stitcher may be equipped with automatic and semi-automatic feeding and spacing devices, tables, gauges or other fixtures to guide work and assist in high speed operation, and in handling specialty work.

This machine is recommended for plants having continuous steady production of all types of containers and any work that demands the sturdiest type of equipment.

SPECIFICATIONS. Bliss 90° or 45° Stitcher Head; uses any of the standard ribbon and Hybar wires, also other flat and round sizes. (See page 216 for complete stitcher head and wire data.)

Three throat lengths—15″, 25″ or 33″. Extra long throat lengths up to 48″ may be supplied, as ordered.

Standard Heights ,40″, 45″, 50″, from the stitching point to floor.

Motor, $^1/_4$ HP any desired electrical specification.

BOSTON NARROW HEAD BOX STITCHER

The Boston Box Stitcher embodies the Boston Vertical Feed Narrow Stitcher Head fully described on page 216.

This machine is used for stitching the regular line of corrugated and solid fibre shipping containers; suitable also for telescope containers, suit boxes, folding boxes, cartons, bags and other specialties.

This box stitcher is recommended for plants handling the usual thicknesses and grades of stock. It operates at speeds up to 300 stitches per minute and production depends on ability of the operator to handle work through the machine.

Suitable tables, gauges, and fixtures are available for special box work. Open head devices may also be had for stitching manufacturer's seams on regular slotted shipping containers. The stitcher head is quickly detachable for service or adjustments.



Fig. 2. Boston Box Stitcher

SPECIFICATIONS. Boston Narrow Stitcher Head which can be arranged to drive stitch either parallel or at right angles to arm; uses any of the standard sizes of ribbon and Hybar wire, also other flat and round sizes. (See page 216 for complete stitcher head and wire data.)

Two throat lengths—12″ and 24″.

Clearance between stitcher head and clinching anvil, $^5/_{16}$.

Standard height, 44″ from clincher to floor.

Motor, $^1/_4$ HP any desired electrical specification for attaching to either light or power line.



Fig. 3. Boston No. 10 Box Stitcher

BOSTON LIGHT DUTY BOX STITCHER

The Boston No. 10 Box Stitcher is a light model machine equipped with the Boston No. 26 Narrow Stitcher Head. Clearance between stitcher head and clincher anvil is $^3/_4$″. Wire used is 21 x 25 flat or 21 to 25 or 25 to 28 round, and work up to $^1/_4$″ in thickness may be stitched. Crowns may be furnished for $^3/_8$″ or $^1/_2$″. Height from floor to stitching point is 36″.

It is adapted for light stitching operations, either on boxes or flat work such as bag sealing and attaching articles to cards. When built to drive a pointed stitch and equipped with a table it is much used for attaching tickets to hosiery and other textile articles.

Figure 3A shows this machine equipped with standard table. Distance from stitch to inside edge of frame is 10 inches.

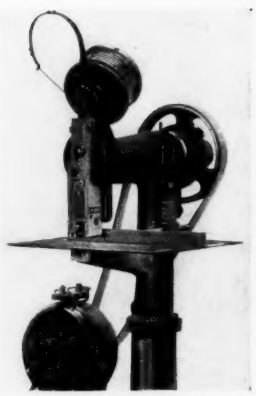


Fig. 3A. Boston No. 10 Stitcher with Table

BOTTOM STITCHERS

BLISS BOTTOM STITCHER

The Bliss Bottom Stitcher, equipped with the Heavy Duty stitcher head, is recommended for stitching the bottoms of regular slotted containers, Bliss Collapsible boxes and many other purposes, where maximum production is required.

The machine operates at speeds up to 300 or more stitches per minute and handles all the usual sizes of shipping containers. No adjustments are required for any size of container within its range. Production varies from four to eight cases per minute.



Fig. 4. Bliss Bottom Stitcher

For medium sizes of boxes the $1^5/_8$″ clearance between post and stitcher head allows sufficient space for convenient handling without tilting the post; for large size boxes the post is moved forward by means of a foot lever to aid placing the box in position for stitching. The head of the post, which contains the clincher, may be adjusted up or down with a few turns of the wrist. A heavy spring is mounted in the post permitting clincher to accommodate variations in the thickness of stock. Adjustments are provided to take up any wear in the post at the joint.

The rugged construction of the Bliss Bottom Stitcher assures long service on heavy duty work.

SPECIFICATIONS. Built in two sizes: 15″ or 25″ throat.
Motor, $^1/_4$ HP any electrical specification desired.
Height to clinching point from floor 45″ or 50″.

BLISS COMBINATION BOX AND BOTTOM STITCHER

This is a general purpose machine which enjoys a wide use in a great variety of industries as it can be used for regular box stitching, and also for bottom stitching of containers. It is especially popular in plants using both Bliss No. 4 boxes and regular slotted containers. The former can be assembled on the box arm; the latter can be bottom stitched on the post.



Fig. 6. Bliss Box and Bottom Stitcher

Output on this machine is the same as that obtained on the Bliss Box Stitcher and the Bliss Bottom Stitcher.

When used for box stitching the post is removed and placed in a convenient socket on the pedestal, and the box arm placed in position; when used for bottom stitching the box arm is folded down and post placed in operating position. Change can be made in one minute. A small table may be attached to the box arm if desired.

The machine is built in two sizes, with 15″ and 25″ throat, respectively. The Bliss Heavy Duty Stitcher Head is used.

SPECIFICATIONS. 300 stitches per minute. Height to clincher 45″ or 50″.

BLISS DUPLEX BOTTOM STITCHER

The Duplex Head Bottom Stitcher drives two stitches simultaneously, enabling an increase in production of 50% to 60% greater than is possible with single head stitchers, without increasing labor cost. This new bottom stitcher is proving to be a popular machine in plants handling large quantities of containers, both of the type having outside flaps to meet, as well as for boxes having an overlap.

It is recommended for the following products: canned goods, bottled goods and other food products; shoes, tissue paper, soap and any commodity packed in quantity.

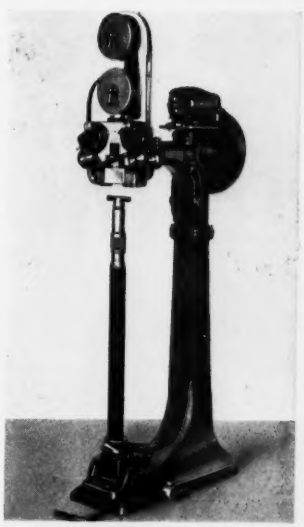


Fig. 5. Bliss Duplex Bottom Stitcher

One operator can stitch 6 to 12 boxes per minute. With two operators (one folding and one stitching) as many as 18 boxes per minute can be stitched.

Machine is equipped with Bliss Heavy Duty Duplex Stitcher Head, and post with double clinching bar, spaced for driving stitches $2^1/_2$″ apart (the spacing required by the Railroad Classification). One pedal controls operation of post and stitching head, reducing time to insert and remove the box. No adjustments are required for various sizes of boxes. Corrugated or solid fibre boxes may be stitched with equally satisfactory results.

SPECIFICATIONS. Built in one size with 15″ throat length.
Height to clincher 45″. Drives up to 600 stitches per minute.
Motor $^1/_3$ HP any electrical specification required.

BOSTON BOTTOM STITCHER

The Boston Bottom Stitcher, equipped with Boston Narrow Stitcher Head, is a general purpose machine for stitching bottoms of corrugated and solid fibre containers and other work.

It operates at speeds up to 300 stitches per minute, and will bottom seal containers up to a depth of 38″. Its convenient operating features assure high production per day.

The post swings to the right to aid operator in placing box in position for stitching. One pedal advances the post to stitching position and also engages the stitcher mechanism, a time saving feature. Variations in thickness between two and three pieces of board are automatically compensated. Its smooth operation assures long service and low maintenance cost.



Fig. 7. Boston Bottom Stitcher

SPECIFICATIONS. Uses Boston Narrow Stitcher Head. (See page 216 for description and wire data.)

Built in one size with 12″ throat.
Motor $^1/_6$ HP any electrical specification required.
Height from floor to stitcher head 43″.

TOP STITCHERS

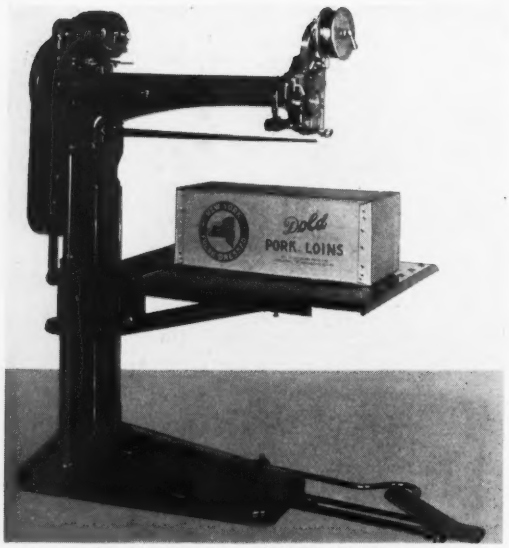


Fig. 8. Bliss Power Lift Top Stitcher

BLISS POWER LIFT TOP STITCHER

The almost entirely automatic operation of the New Bliss Power Lift Top Stitcher permits the operator to handle with much less effort many more containers per day than is possible on the quick lift top stitcher. It is recommended where large numbers of heavy containers are used and is especially suitable with conveyor installations.

By adjusting the work table to coincide with the conveyor line, filled containers may be transferred to the table without lifting, thus eliminating the possibility of tearing flaps or otherwise damaging the case in handling before it is sealed.

The stitcher is equipped with a power driven work table operated by a balanced foot pedal for raising or lowering the box. A device actuated by the top of the container automatically stops the table in just the right position for top stitching. One motor operates power lift and stitcher. A steel work table equipped with steel ball bearings permits free movement of container while being stitched.

SPECIFICATIONS. Equipped with Bliss Heavy Duty Stitcher Head. (See page 216 for description and wire data.)

Built in one size, with 33″ throat length. Table size 26 x 40″.

Height from floor to clincher anvil, 48″ taking boxes up to 24″ in depth.

Motor, 1/3 HP any electrical equipment required.



Fig. 9. Bliss Quick Lift Top Stitcher

BLISS QUICK LIFT TOP STITCHER

The Bliss Top Sealing Stitcher is used for wire stitching the tops of regular slotted containers and Bliss Boxes. Wire stitching provides a uniform pilfer proof closure, that gives added strength and rigidity to the container; it also effects a considerable saving over the cost of taping the joints.

Production depends on the size of the box; usually 3 to 5 containers of average size can be completely sealed per minute.

The clinching end of the blade anvil is quickly adjustable up or down as needed without the use of tools. The steel work table is equipped with steel ball bearings to permit free motion in any direction of the box being stitched. The table is supported by the Bliss quick lift mechanism which is positive in action and instantly adjustable up and down. Raising and lowering of table is facilitated by the use of counterbalancing steel springs.

SPECIFICATIONS. Equipped with Bliss Heavy Duty Stitcher Head. (See page 216 for description and wire data.)

Built in three throat lengths—15″, 25″ and 33″, accommodating boxes up to 33″ long, 33″ wide and 30″ deep.

Height from floor to clincher anvil, 45″ and 50″. Higher machines are obtainable as ordered.

Table sizes: 26 x 30″, 26 x 40″, and 30 x 40″.

Motor, 1/4 HP any electrical specification required.

May be equipped with casters for moving about as desired.

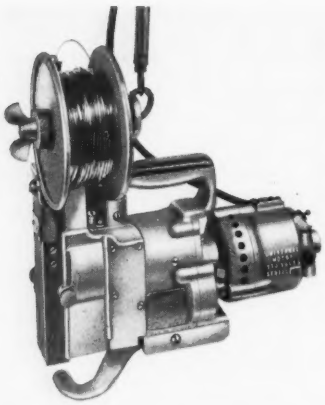


Fig. 10. Bliss Portable Top Stitcher

BLISS PORTABLE TOP STITCHER

Containers of large dimensions or exceptional weight which are inconvenient or impossible to stitch on a standard top stitcher are easily sealed with the Bliss Portable Top Stitcher. This unique machine is also useful for sealing the tops of mixed sizes of containers which vary in dimensions. The outstanding advantage of the Portable is that containers need not be removed from conveyor or truck, or handled in any way, the stitcher being taken to the container rather than the container to the machine. Plants having a use for this stitcher will find it to be practical and dependable.

The machine weighs but 20 lbs. As an aid to the operator the stitcher may be suspended from a hook or an overhead trolley by means of a spring. Thus the operator is free to move the machine in any direction, but does not have to support its weight at any time.

The Bliss Portable Stitcher is entirely self-contained with built-in Universal motor. Framework and body are made of light weight metals and alloys designed to combine maximum strength with minimum weight. The stitch is clinched on a C-shaped anvil permitting any length of seam to be stitched. The anvil is withdrawn from the seam by a rotary motion.

Uses No. 2 Hybar wire, with 3/8″ crown.

XUM

REGULAR SLOTTED CONTAINER STITCHERS

BLISS DIAGONAL HEAD RSC STITCHER

The Bliss Diagonal Head Regular Slotted Container Stitcher, which drives the stitch at an angle of 45° to the manufacturer's seam, is a particularly desirable machine for stitching corrugated or solid fibre containers. The stitch when placed diagonally across the corrugations makes the strongest seam available. Solid fibre containers are also stronger when diagonally stitched, as the stitch is always across the grain of the board, thus enhancing its holding strength.

It is not uncommon to find this machine operating at speeds of 400 to 500 stitches per minute. As many as 10,000 containers with five stitches are frequently produced in a day's run.

The machine is equipped with the Heavy Duty Stitcher Head and a steel work table with quickly adjustable guides. The Bliss Open Head device for holding the flaps in position, is rigidly attached to the stitcher head casting and is therefore self-supporting. The clincher arm does not rest on the box blank at the moment of stitching, which feature eliminates the crushing of the corrugations or denting the board.

A parallel gauge table may be furnished on which the gauge is adjusted in one movement by a crank, and is always in correct parallel position. With this device change from one size to another is made in less than one minute.

SPECIFICATIONS. Built in 32″, 38″ and 48″ throat lengths.
Height to clincher, 43″. Size of Table, 42 x 39″, 42 x 44″ and 42 x 54″.
Motor 1/4 HP any electrical specification required.

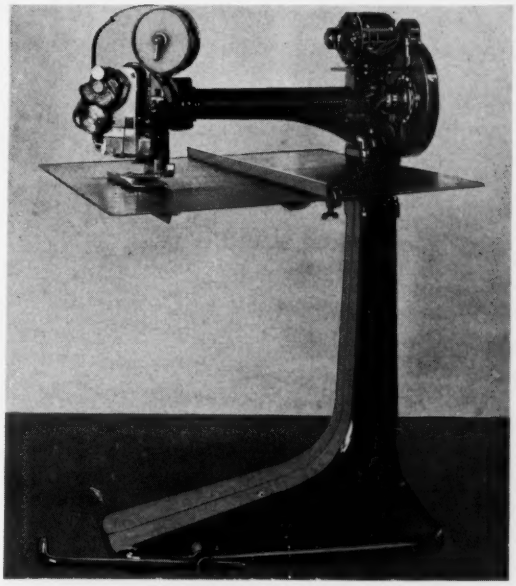


Fig. 11. Bliss RSC Stitcher (Diagonal Head)

BLISS RSC STITCHER

The Bliss Regular Slotted Container Stitcher, for stitching manufacturer's seams, is widely used in box board plants making containers of corrugated or solid fibre board. It operates at the same high speeds as the Diagonal Head machine.

The machine is equipped with the Bliss Heavy Duty Stitcher Head. The Bliss Open Head device for holding the flaps in position, and steel work table are also the same as those on the Diagonal Head machine.

It is built with a straight head, which drives the stitch parallel to the seam. The table and open head device may be removed from the machine and the latter used for ordinary box stitching. Some plants prefer to stitch the manufacturer's seam on the box arm, which gives a stitch horizontal to the seam.

SPECIFICATIONS. Built in 15″, 25″ and 33″ throat lengths.
Height to clincher, 43″.
Size of table, 42 x 39″, 42 x 44″ and 42 x 54″.
Motor 1/4 HP any electrical specification desired.



Fig. 12. Bliss RSC Stitcher

LATHAM AUTOMATIC RSC STITCHER

The Latham No. 85 Automatic Regular Slotted Container Stitcher is performing a very important part in large box making factories where high production, large volume, uniform spacing and maximum efficiency are necessary. This machine is recommended for corrugated and solid fibre boxes and is particularly suitable for handling the seasonal demands for cases used for shipping canned goods, food products, bottled goods and other commodities.

The machine will stitch the manufacturer's seams of a wide range of sizes representing 90% of the boxes produced. Production varies from 1200 to 2500 containers per hour.

Design of the machine is arranged for quick set-up, time required averaging from two to five minutes. The heavy duty stitcher head drives a single row of stitches, or a single row of stitches with tie stitches at each end, at speeds up to 400 revolutions per minute. The stitch is driven at a 45° angle.

The folded container is fed into the machine, where it is automatically picked up with rubber or steel rollers, moved into a squaring device, stitched and removed. The machine is ruggedly constructed and equipped with automatic lubrication system.



Fig. 13. Latham Automatic RSC Stitcher

COMBINATION STITCHERS

BLISS COMBINATION TOP AND BOTTOM STITCHER

This combination machine is used both for bottom stitching and top sealing. It is intended for plants whose production does not warrant installation of separate Bottom and Top Stitchers.



Fig. 14. Bliss Top and Bottom Stitcher

It is much used in such industries as shoe manufacturing, meat packing, and shipping of food, shingles, rubber goods, chemicals, etc. Output is the same as that obtained on the Bliss Quick Lift Top Stitcher or the Bliss Bottom Stitcher.

For assembling cases by bottom stitching, the blade anvil is dropped down against the pedestal, and the table is swung to one side; the post is placed in a socket on the base and locked in position. After the desired number of containers has been bottom stitched, the post is removed and table and blade anvil swung into position for top stitching. Less than one minute is required to make the change. Machine may be equipped with casters for moving about the plant.

Built in two sizes with 15″ and 25″ throats, and 26 x 30″ work table. Handles boxes up to 25″ in depth. The standard Heavy Duty Stitcher Head is used.

LATHAM CORNER STAY STITCHER

The Latham Corner Stay Stitcher places a right angle stitch around the corner of the box. Corner stitching makes a strong box, neat in appearance, and is a practical, economical method of corner sealing. Illustrations of corner stitching are shown on page 217.

The machine is used extensively for hardware packing boxes, cracker caddy covers and boxes for other purposes; also for strengthening the higher grade set-up boxes which are later covered with paper. Operating speeds on such work as caddy covers are frequently as high as 20 or more complete covers per minute. Clinching arm is equipped with spring gauge for accurate registering of the stitch. This machine is considered the most successful corner stitcher throughout the trade. Straight cut-off or pointed stitch is optional.

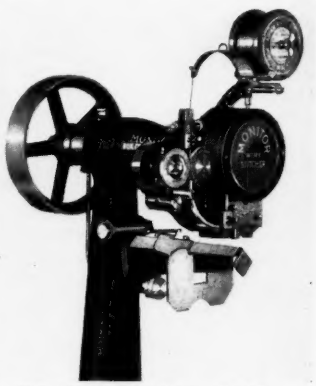


Fig. 16. Latham Corner Stitcher

Machine is equipped with Latham Roll Feed Stitcher Head which drives a stitch measuring $^1/_2$″ from corner of box to clinch. Distance from stitch to inside of frame is 12″. Wire used is .017 to .020 flat ribbon, or No. 20 x No. 25 size.

BOSTON MULTIPLE HEAD STITCHER

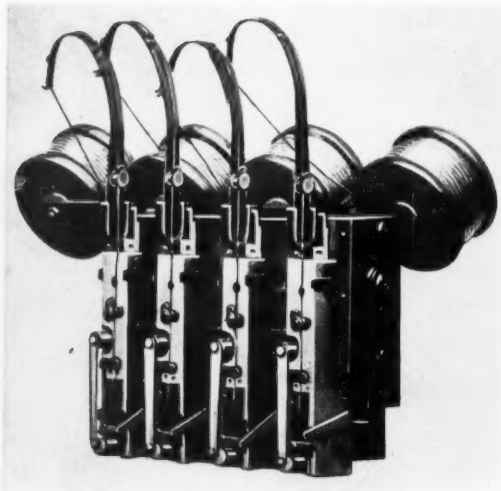


Fig. 15. Boston Multiple Head Stitcher

The Boston Vertical Feed Narrow Stitcher Head is the best known and most widely used head for multiple stitching operations. Two types of heads are available, the light No. 26 type with minimum center to center spacing of $1^5/_8$″, and the heavy No. 15 type with minimum of 3″.

Book matches are stitched on multiple head machines in gangs of two to ten up, using this type of stitcher head. Machines for stitching wire finger pulls in milk bottle caps and similar work in gangs or sheets are equipped with Boston heads. They are also used for numerous other types of machines built for special products that require stitching singly or in gangs.

A battery of Boston stitcher heads may be mounted on a frame and operated by a common bar drive. They are instantly adjustable for distance between stitches or for various thicknesses and are removable for service. Stitches can be placed to register so that they do not interfere with cutting or other converting operations.

Standard Boston Stitching machines with as many as twelve heads, handling work up to 33″ in width, are available.

Information regarding special stitching requirements will be furnished on request.

XUM

SPECIAL STITCHER ADAPTATIONS



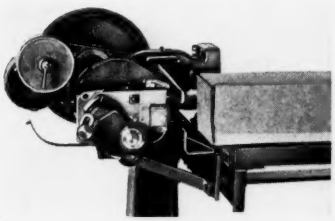
BLISS FROST FOOD PACKAGE STITCHER



The Frost Food Package is coming into widespread use for the merchandising of pies, coffee rings, cup cakes and other similar products. The package comprises an ordinary paper pulp pie plate, a disc of transparent cellulose and an additional ring. Ring and cellulose are attached to the rim of the plate by means of wire stitching. The package increases protection of the contents, and greatly enhances sales appeal.

The Bliss Stitcher equipped with adjustable revolving work table which holds the package in position for stitching is used for sealing this package. As many as 1000 packages per hour can be stitched.

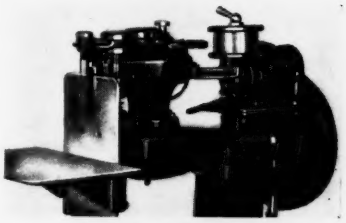
For small operations a Boston No. 10 machine is also available, equipped with the same accessories. A special circular has been prepared giving full details of this package, and will be mailed on request.



BLISS HORIZONTAL HEAD BUMPER CASE STITCHER



Bliss Stitchers with head placed in horizontal position are used for stitching the ends of automobile bumper boxes, shade cloth and screen cases, and other cases of the long, narrow type with the opening on the end. The machine may be mounted on a bench. A short blade anvil is used and the operation is the same as that of a regular top stitcher. A roller work table may be used to facilitate handling.

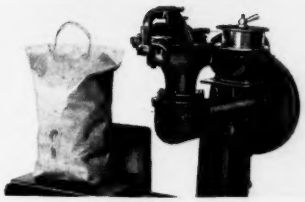


BLISS CADDY COVER STITCHER

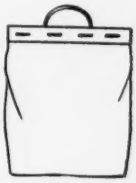


This machine, with horizontal stitcher head, is used for attaching covers to caddy boxes that have inner top flaps turned down on the outside. The box with cover is placed in position on the table, and a short blade anvil moves upward and behind the inner flap at the moment of stitching, thus attaching the cover and flap firmly.

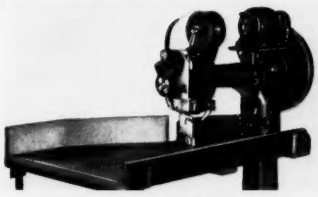
It is also built with the blade anvil moving downward at the moment of stitching. This adaptation is used for sealing cartons and caddies that have no extra top flaps. The anvil enters a pre-cut slot in the top, or it may be sharpened for cutting its own slot. This machine is also used for sealing telescope boxes.



BLISS BAG STITCHER



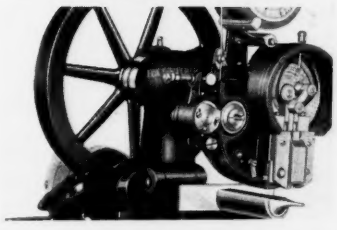
This machine has a stationary vertical anvil, and is adapted for sealing bags containing coal, chemicals, fertilizers, seeds and the like. Bags are conveyed to the machine and the operator folds the top of the bag and guides it between the anvil and stitcher head for stitching. The machine can be used for either paper or cloth bags.



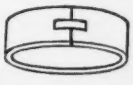
BLISS STOCKINETTE STITCHER



Cloth bags used in processing of smoked hams, butts and other similar products are tightly stitched at both ends with the Stockinette Stitcher, which has been specially designed to handle this operation quickly and conveniently. The machine drives a special stitch, circular in form, around the bag and holds the bag firmly around the meat. A knife attached to the stitcher head is provided for cutting the bag between stitches.



LATHAM BELT LOOP STITCHER



This machine is used for stitching belt loops. It is adjustable for all sizes of loops, and as many as 50 per minute may be stitched. Stitching belt loops on this machine is more economical than any other method of fastening, and the loop is securely held.



STITCH REMOVER

This is an inexpensive Hand Stitch Remover that has proved very satisfactory to the trade. It is much used in opening Bliss Boxes and other wire stitched containers for removal or examination of contents. The jaw is hardened steel and will remove stitches from solid fibre or corrugated board without damage to the liner.

BLISS AND BOSTON STITCHER HEADS

BLISS HEAVY DUTY STITCHER HEAD

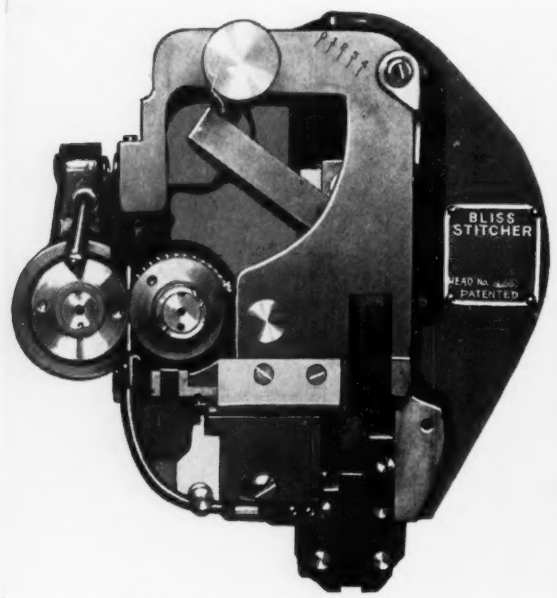


Fig. 24. Bliss Heavy Duty Stitcher Head

The Bliss Heavy Duty Stitcher Head is used on all types of Bliss Stitchers, except the Bliss Portable Stitcher. It is the fastest, strongest, most durable and dependable Box Stitcher Head built.

OPERATION.

At each operation wire is fed from the spool, cut to a predetermined length, formed into a stitch and the latter driven through the material and clinched. This work is performed at speeds up to 500 operations (500 stitches) per minute.

CONSTRUCTION.

Because of the heavy wire used for box stitching, and the high operating speed, only the best and most durable materials will withstand the wear and tear to which the Bliss Stitcher Head is subjected. Therefore the cutting, forming, driving and other moving parts are made of hardened tool steel which long experience has proved to be the very best for the purpose and reduces maintenance cost to a minimum.

Extra large working surfaces of cams, long bearing surfaces for former slides, specially hardened knives which can be reground many times, and numerous other engineering features, all contribute to the successful operation and long service of the Bliss Stitcher Head.

The head is easily detachable for service. The wide clearance of $1^5/_8$″ between clincher head and anvil facilitates insertion of heavy work and aids visibility at point of stitching.

SPECIFICATIONS. One adjustment changes the length of wire drawn for varying thicknesses of stock to be stitched.

Interchangeable parts may be furnished for driving the various sizes of wire, at nominal charge.

Standard widths of crown, $^3/_5$″ and $^7/_{16}$″. The head may also be equipped to drive stitches of $^1/_4$″, $^1/_2$″, $^9/_{16}$″, $^3/_4$″, $1^1/_8$″ and $1^5/_8$″.

Clearance between head and clinchers, $1^6/_5$″, which facilitates insertion of the work and aids visibility.

A special sharp stitch cutting block may be furnished to give a pointed stitch for use with corrugated board.

THE BOSTON VERTICAL FEED NARROW STITCHER HEAD

The Boston Vertical Feed Narrow Stitcher Head is used on the various types of Boston Box Stitchers. It will drive all standard sizes of ribbon and Hybar wire, also other flat and round sizes. It operates at speeds up to 300 stitches per minute.

At each operation, wire is drawn from reel, the straightened and fed vertically, in full view of the operator, through the cutters and into stitch former, from which it is driven into the container and clinched. The narrow head, $2^5/_8$″ wide, aids visibility for the operator in placing stitches where desired. Because of narrow construction this stitcher head is adapted to multiple stitching and is much used for this purpose. It is suitable also for attaching to various types of equipment, such as book match, bottle cap and other automatic machines producing work that requires one or more wire stitches.

The stitcher head is quickly detachable for change of parts and service.

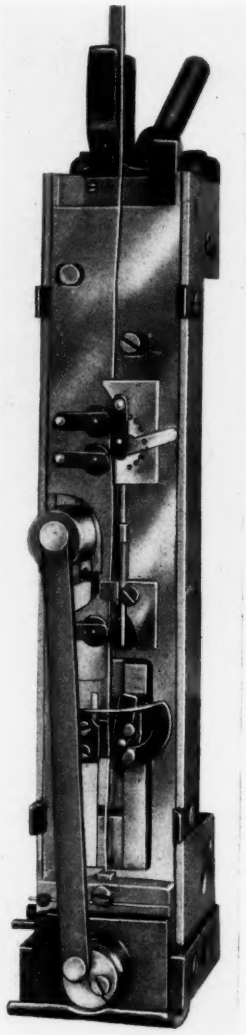


Fig. 25. Boston Narrow Stitcher Head

SPECIFICATIONS. One crank movement adjusts head for all thicknesses.

Standard width of crown $^1/_2$″. Special heads with $^9/_{16}$″, $^5/_8$″, $^{11}/_{16}$″, $^3/_4$″, crown furnished as desired.

Clearance between stitcher head and clincher, $^{15}/_{16}$″.

Minimum spacing on multiple stitching, 3″ center to center.

Head can be furnished for driving pointed stitch.

Head may be mounted either to drive stitch at right angle or parallel to clinching arm.

WIRE TABLE

The following table gives the number of feet and the number of stitches per pound of the most frequently used sizes of stitching wire. Table is based on one inch stitch.

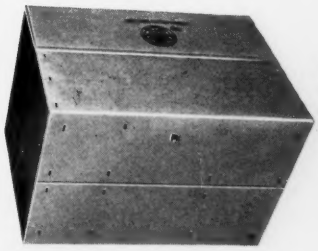
All of the sizes given may be handled on the Bliss Heavy Duty Stitcher Head and the Boston No. 15 Vertical Feed Narrow Stitcher Head.

	Ft./Lb.	Inches/Lb.
Flat Wire .017 x .103	176	2100
" " .020 x .103	142	1700
" " .023 x .103	107	1280
No. 1 Hybar .020 x .060	260	3120
No. 2 " .024 x .060	214	2560
18 x 20	220	2640
20 x 25	460	5520
No. 18 Round	166	1990
No. 20 "	310	3720

SOME TYPES OF BOXES STITCHED ON BLISS, BOSTON AND LATHAM STITCHERS



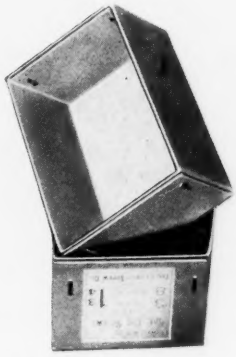
Regular Slotted Container, side stitched on RSC Stitcher



Regular Slotted Container, showing bottom stitched on Bottom Stitcher



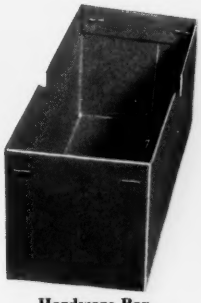
Regular Slotted Container, showing top stitched on Top Sealing Stitcher



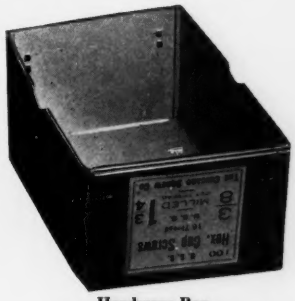
Hardware Box, stitched on Box Stitcher



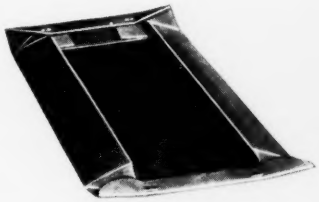
Hardware Box, stitched on Corner Stitcher



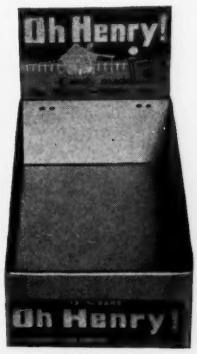
Hardware Box, stitched on Box Stitcher



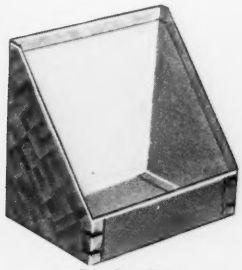
Hardware Box, stitched on Box Stitcher



Folding Suit Box, stitched on Box Stitcher



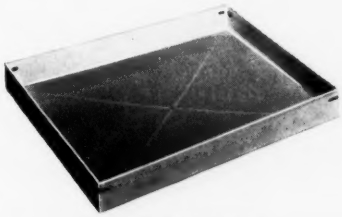
Display Box, stitched on Box Stitcher



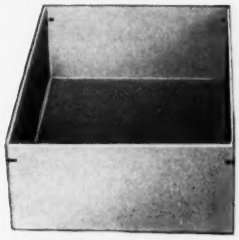
Display Box, stitched on Corner Stitcher



Shopping Bag, stitched on Box Stitcher



Caddy Container Lid, stitched on Corner Stitcher



Caddy Container, stitched on Corner Stitcher



Caddy Container Lid, stitched on Box Stitcher

SPECIAL SEALING EQUIPMENT

BLISS ADHESIVE SEALER

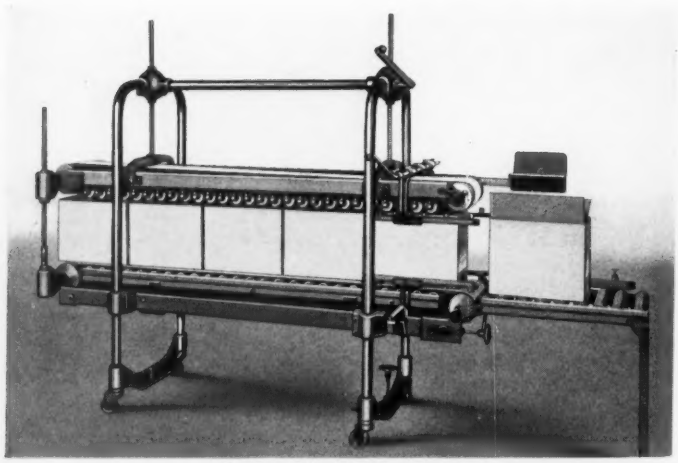


Fig. 26. Bliss Adhesive Sealer

This machine is a compression unit used in connection with adhesive sealing of containers. After glue has been applied and flaps folded down the box is placed in the compression unit. As the container passes through, sides and flaps are held firmly in position until the adhesive has taken an initial set. A uniform effective seal results.

In operation both top and bottom belts are driven, thus maintaining even compression and making it possible to pass through a single box if desired. The bottom roll-bed can be set at any desired height. The top unit is quickly adjustable up or down by means of a crank. Roller guides at the entrance end of the machine hold the sides of the box firmly in place until the flaps are held by the belts; the guides are quickly adjustable by means of a crank. An automatic trip is provided, actuated by each entering box so that the machine operates only as new boxes are pushed over the trip by the operator. All rollers operate on ball bearings. Machine is equipped with casters and is easily movable. Motor is small and can be attached to a light socket. Standard lengths are 7′, 9′, 12′ and 15′. This machine can be used in conjunction with an automatic gluer.

BLISS FULL AUTOMATIC SIDE SEAM STITCHER FOR BLISS BOXES

Automatic machines to meet special large production and labor saving requirements are developed by us as occasion demands. The machine illustrated here automatically turns the end flanges out, and folds down and stitches the top flaps. A double head top stitcher working in conjunction with this machine automatically stitches the end flanges, thus completely sealing the container. A conveyor system brings the filled containers to the machine. With the saving in labor and continuous high speed production obtained, the sealing operation is performed at an extremely low cost.

Arrangements for a complete survey of your large production requirements may be made upon request.

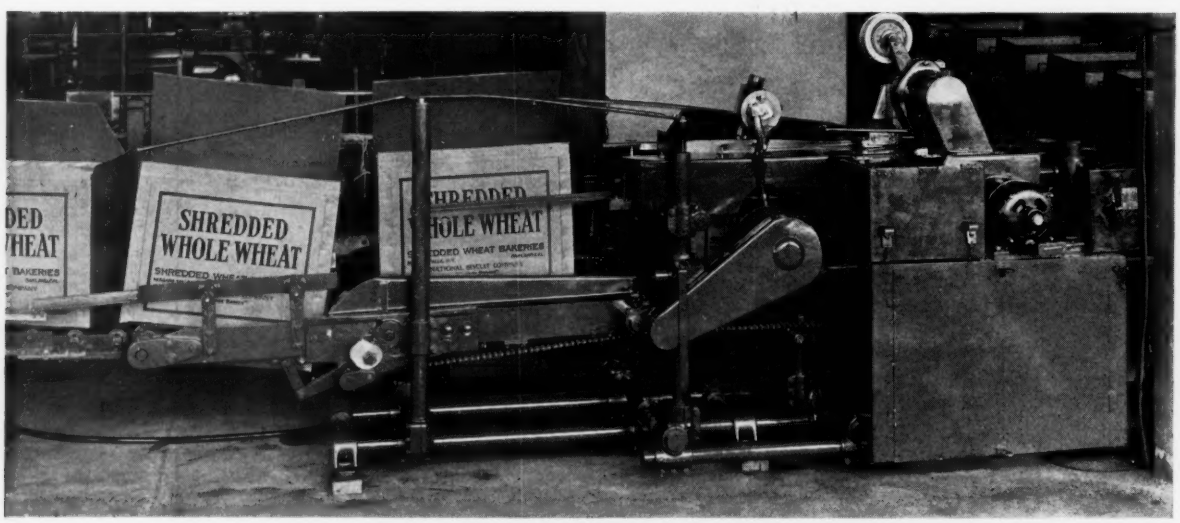


Fig. 27. Bliss Automatic Side Seam Stitcher for Bliss Boxes

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BLISS BOXES

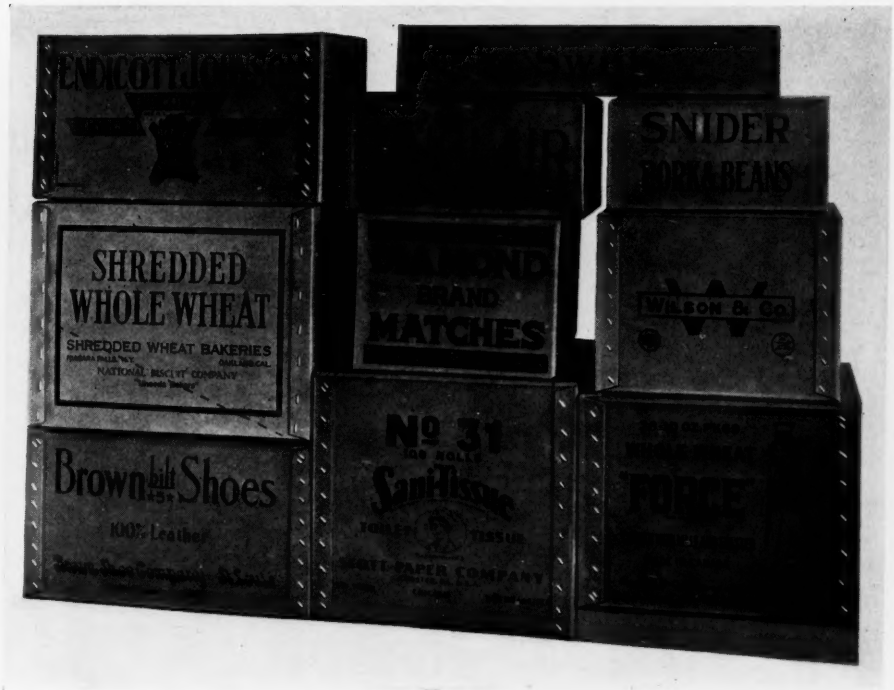


Fig. 28. Bliss Boxes

THE SAFEST SHIPPING CONTAINER

Packing goods in BLISS BOXES assures the manufacturer of the greatest possible margin of safety to his goods while stored and in transit. The three-piece construction, with all vertical seams reinforced, makes the BLISS BOX the strongest corrugated or solid fibre container obtainable.

The special method of construction of the Bliss Box offers greatly increased resistance to all types of stresses, whether from within or without the box.

The various types of Bliss Boxes comply with all of the requirements of Rule 41 of the Consolidated Freight Classification.

LOW IN COST

Bliss Boxes are economical because they contain no waste stock. The saving in material and freight charges reduces the total cost an average of 10% and in some instances as much as 20% when compared with other types of fibre containers. The extra strength of the BLISS BOX also often permits the use of lighter board which effects an additional saving.

EASY TO OBTAIN, ASSEMBLE AND SEAL

Blanks for BLISS BOXES are manufactured under license by nearly all leading board mills and box factories in the United States and Canada and are therefore as readily obtainable as other types of shipping containers. A complete list of licensed manufacturers will be furnished on request.

Equipment for easy, convenient assembling and sealing of BLISS BOXES is furnished by the Dexter Folder Company, a fifty-three year old concern, with sales and service offices in New York, Chicago, Philadelphia, Boston, Cleveland, St. Louis, San Francisco, Los Angeles and Seattle.

USE OF BLISS BOXES INCREASING

The BLISS BOX is a comparatively new development in the shipping field, yet it has proved its value to such an extent that over 35,000,000 boxes were used in 1932. Some of the users are:

14 of the largest Meat Packers
11 prominent Shoe Manufacturers
10 Food and Canned Products Companies
4 nationally known Cereal Companies
2 Chemical Companies
5 Match Companies
4 of the Sanitary Paper Companies
5 representative manufacturers of textiles, shipping goods up to 500 lbs. per box

WE CAN ANSWER THESE QUESTIONS

Are we shipping in containers best adapted to our goods?

Can we obtain a stronger container that will not crush in warehouse or car, at the same cost?

Can we save money on a container that is equally as good as those we now use?

Will a different container save in freight costs?

Are our containers the most convenient shape for filling and handling?

Is there a container that is more pilfer proof?

Can we obtain modern, high speed equipment for economically assembling and sealing a variety of sizes?

Dexter men who have a wide knowledge of shipping requirements for many products will be pleased to answer questions at your request and convenience.

TYPES OF BLISS BOXES

BLISS NO. 2 BOX



Fig. 29. No. 2 Bliss Box—Open

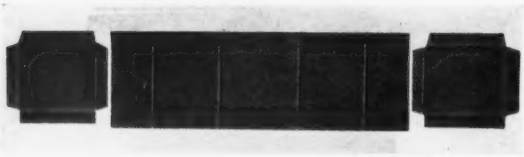


Fig. 30. No. 2 Bliss Box Blanks



Fig. 31. No. 2 Bliss Box—Sealed

The Bliss No. 2 three-piece box represents the maximum saving in material. In this style the stitching flanges are a part of the end panels. When assembled, the flanges form a double thickness of board on all vertical seams and on horizontal seams at each end of the box. Grain of board may be run vertically or horizontally. This construction concentrates strength at the edges and corners to withstand rough handling in stacking and transit. The strength of this style box is adequate for a great variety of products.

Illustration shows box with overlap in center. This box may also be made with overlap at the side, using the same size body blank.

Where large quantities of boxes are used, they are assembled by wire stitching on the Bliss Double Head Assembly Stitcher. Where only a few hundred cases per day are required, the Bliss Single Head V-arm Stitcher is recommended. The box, with either center overlap or side overlap, is sealed on the Bliss Top Stitcher or Bliss Portable Stitcher.

This box may also be sealed on a Bliss Adhesive Sealer.

BLISS NO. 4 BOX

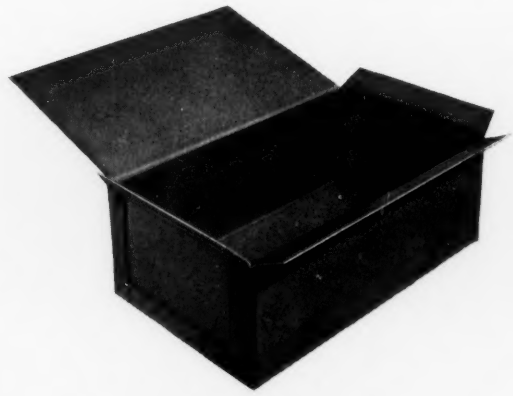


Fig. 32. Bliss No. 4 Box—Open

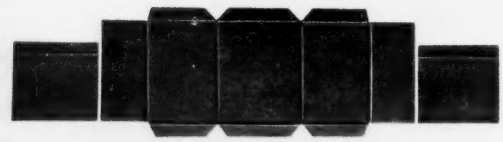


Fig. 33. Bliss No. 4 Box Blanks



Fig. 34. Bliss No. 4 Box—Sealed

The Bliss No. 4 Box has the flanges on the body sheet. This style has the advantage of placing three flanges on each end of the box, which gives added protection for shipment of products such as canned goods or any other commodities where an end thrust of the contents is to be guarded against. The flanges also serve as vertical reinforcement and protect the goods when boxes are stacked.

Illustration shows box with overlap at the side. This box may also be made with overlap in the center, using the same size body blank.

This box is assembled by wire stitching on the Bliss Single Head Box Stitcher. It may also be assembled on the Bliss V-arm Box Stitcher or Bliss Top Stitcher.

The box with either center overlap or side overlap is sealed on the Bliss Top Stitcher or Bliss Portable Stitcher. It may also be sealed on the Bliss Adhesive Sealer.

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TYPES OF BLISS BOXES

BLISS NO. 4-2 BOX

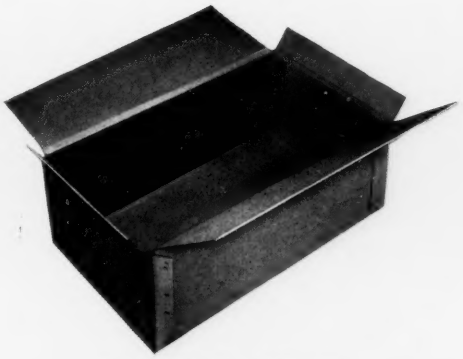


Fig. 35. Bliss No. 4-2 Box—Open

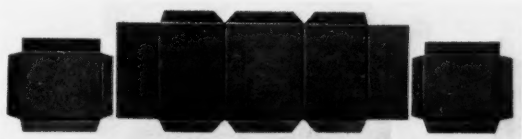


Fig. 36. Bliss No. 4-2 Box Blanks

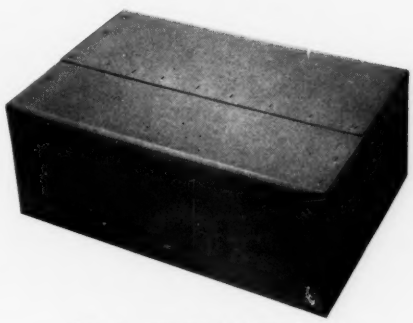


Fig. 37. Bliss No. 4-2 Box—Sealed

The Bliss No. 4-2 Box has flanges both on the body sheet and the end panels. When assembled it has a double reinforcement on all end seams. It is stronger than either the No. 2 or No. 4 box, and is desirable for carrying heavy loads, or where extreme rigidity is required for protection of the contents. Therefore it is recommended for shipping hardware, bulk goods and other products requiring the strongest type of fibre container available.

It is specially suitable for packing blankets, sheets and cotton piece goods which have heretofore been shipped in wooden boxes.

A number of leading concerns are using this box for export shipment because of its ability to withstand many handlings. This type of Bliss Box will carry two hundred to five hundred pounds.

BLISS NO. 24 COLLAPSIBLE BOX

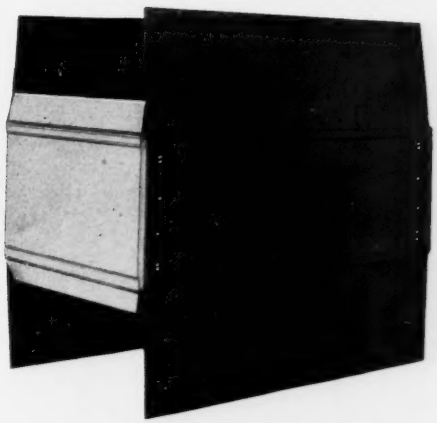


Fig. 38. Bliss No. 24 Collapsible Box

The Bliss No. 24 Collapsible Box is made of four blanks, and is assembled preferably at the mill and delivered knocked down in one piece form. It offers nearly the same saving in material as the Bliss No. 2 Box and has the advantage for the small plant, or user of many sizes, that it comes from the mill ready for filling and sealing. The bottom is stitched on a bottom stitcher or taped, while the top flaps may be stitched on a top stitcher or with the Bliss Portable Stitcher. The top may also be taped if desired.

BLISS REINFORCED END BOX

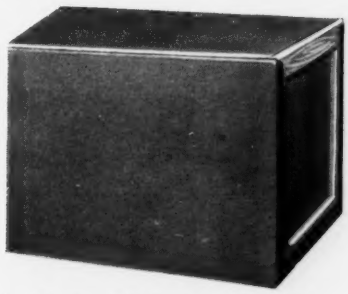


Fig. 39. Bliss Reinforced End Box

The Bliss No. 4 Box may be specially reinforced with narrow wooden cleats framed together which are attached to the end panels. These cleats are applied by the mill furnishing the blanks. The box is assembled in the usual manner. This box is adapted for use with certain meat or similar products, where extra stacking strength under damp conditions of refrigeration is desired.

BLISS BOXES FOR SPECIAL PURPOSES

Bliss Boxes for shipping eggs, poultry, bulk goods, commodities subject to inspection, and other products have been designed by our engineers. Prompt attention will be given to inquiries for special types of boxes required for packing and shipping your goods.

BLISS BOX ASSEMBLY MACHINES

BLISS DOUBLE HEAD ASSEMBLY STITCHER



Fig. 40. Bliss Double Head Assembly Stitcher

This machine is designed especially for the assembly of Bliss No. 2 and No. 4-2 Boxes. The standard machine handles boxes in dimensions up to 33″ x 28½″ x 28½″. Three, four or more boxes may be assembled per minute.

Stitches are driven diagonally which gives maximum strength to the seam. A work table is provided in the rear for holding the body blanks, the end panels being stacked on either side of the operator. An automatic feeding and spacing mechanism is built in so that the operator has only to place the blanks into proper position and step on the pedal. The stitches are driven simultaneously in both flanges and properly spaced. Figure 41 shows a typical Bliss Box after the first seam has been stitched on this machine while figure 40 shows the machine in operation on the second seam. The machine is quickly adjustable for boxes of any dimensions within its range.

A special size may be furnished built to order only for handling boxes up to 65″ x 40″ x 40″, a size frequently used in the textile trade.



Fig. 41. Bliss Box in Partial and Complete Assembly

BLISS SINGLE HEAD ASSEMBLY STITCHER

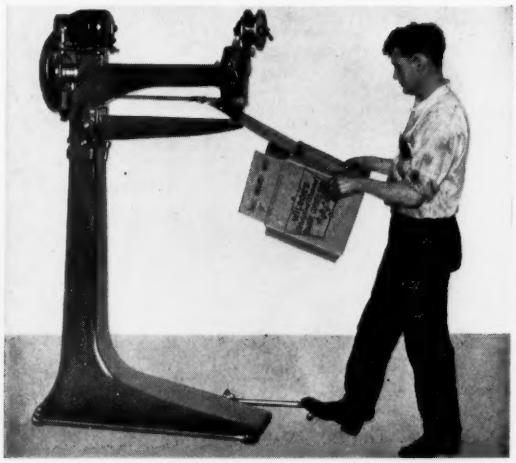


Fig. 42. Bliss Single Head Assembly Stitcher

The Bliss No. 4 Box is usually assembled on the stitcher shown here. The machine is built in three sizes with 15″, 25″ or 33″ throat length. These three sizes cover approximately the entire range of Bliss Box sizes. No. 4 boxes can be assembled at the rate of two to three boxes per minute. This machine may also be used to complete the assembly of Bliss 4-2 Boxes, by stitching the extra flanges on the end panels after the box has been partly assembled on a Double Head Stitcher.

The arm of the machine is fitted with a gauge and also a panel holder to aid the operator in holding the work. This stitcher is also made with a collapsible arm and a removable bottom post, for use in assembling both Bliss Boxes and slotted containers in plants where both are used.

BLISS V-ARM ASSEMBLY STITCHER

This machine may be used for assembling Bliss No. 2, No. 4, No. 4-2 and No. 2-4 styles of Bliss Boxes. It is recommended where the number of boxes used does not justify the purchase of more elaborate equipment. An average of 1½ or two boxes per minute can be stitched. All the usual sizes of Bliss Boxes can be handled on this machine.

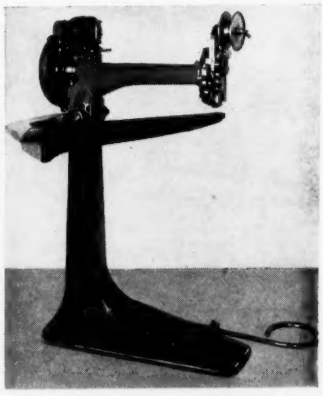


Fig. 43. Bliss Box "V" Arm Stitcher

The machine comprises a regular box stitcher equipped with a V-arm. The box is assembled one side at a time, the V-arm permitting the long body blank to be handled readily. Stitches are placed in the seam at 45° angle.

BLISS BOX TOP STITCHING

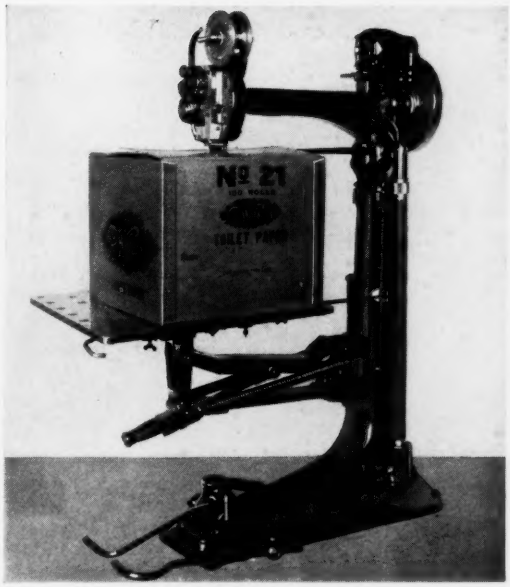


Fig. 44. Bliss Top Stitcher

BLISS QUICK LIFT AND POWER LIFT TOP STITCHERS

Two types of Bliss Top Stitchers are available for stitching the tops of Bliss Boxes—the Bliss Quick Lift Sticher and the Bliss Power Lift Stitcher. Fig. No. 44 illustrates the box in position on the machine, with the blade anvil inserted under the flaps for stitching. This operation is the same on both types of machines.

On the Bliss Quick Lift Top Stitcher the table is operated up and down by means of the hand lever. Raising and lowering of the table is facilitated by the use of counterbalancing springs. Boxes of average size and weight may be stitched at a rate of three or more per minute.

The Bliss Power Lift Top Stitcher, because of its almost entirely automatic operation, permits stitching of boxes at high speed, and is especially convenient for handling boxes of heavy weight. The machine may be placed beside a conveyor line or may be made a part of the conveyor line if desired. The table is adjustable to the height of the conveyor so that boxes may be rolled onto the table without lifting. The box is raised to the exact stitching position by the power lift, and after stitching is dropped to the conveyor level by the same means. These convenient operating advantages assure maximum output per day and relieve the operator of lifting cases before and after stitching.

See Page 212 for further description of these two machines.

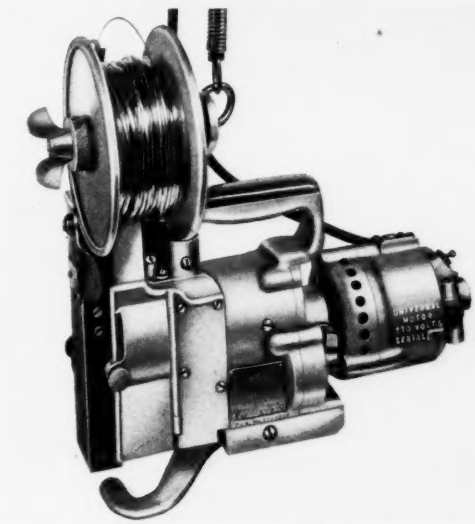


Fig. 45. Bliss C Anvil Portable Stitcher

BLISS PORTABLE TOP STITCHER

The Bliss Portable Top Stitcher with C anvil is a convenient machine for stitching Bliss Boxes that are too large to be stitched on the stationary top stitchers, such as those used for shipping textiles, mattresses and the like. It is also useful for stitching mixed sizes of boxes that would require constant readjustment of the table of a standard top stitcher.

By the use of this machine, suspended from an overhead trolley, the container may be top stitched while on conveyor or truck. Any size of container can be stitched and top flaps can be overlapped at either side or center as desired.

A complete description of the portable stitcher is given on Page 212.

PARTS, WIRE, AND MECHANICAL SERVICE

All Dexter Offices carry replacement parts for all types of Bliss, Boston and Latham Wire Stitching machines, and are prepared to render prompt and efficient service on any of these makes of stitchers.

A stock of all the usual sizes of box stay and bookbinders' wire is available at all offices for prompt shipment.

Your orders for parts, service, rebuilding and wire are solicited.

DEXTER ENGINEERING SERVICE

Every manufacturer has some condition in his shipping department that may be improved or changed to his advantage either for greater efficiency or for economy.

The Dexter Folder Company maintains a corps of engineers who have had extensive experience in packaging and preparing for shipment a great variety of products.

The services of our organization are available, without obligation to you, for making a survey of your packing and shipping departments to determine the most economical methods of handling and protecting your goods while in storage and transit—when they are no longer under your control.

PARTIAL LIST OF USERS OF BLISS BOXES

American Salesbook Company
Armour & Company
Beacon Falls Rubber Shoe Co.
Bear Brand Hosiery Co.
Brown Shoe Company
Samuel Cabot Inc.
Canadian Packing Co.
Canadian Shredded Wheat Co. Ltd.
Chicago Macaroni Co.
Coast Manufacturing & Supply Co.
Globe Soap Co.
H. C. Godman Co.
Goodyear Rubber Co.
Goudey Gum Co.
Hanover Shoe Company
Hecker H-O Co. of Canada, Ltd.
Hoberg Paper & Fibre Co.
Huntington Shoe & Leather Co.
Hygrade Food Products Co.
Independent Baking Co.
National Biscuit Co.
National Chemical Co.
New Hampshire Match Co.
Ohio Match Co.
Phoenix Toilet & Paper Co.
Prince Macaroni Co.
Rath Packing Co.
Sauquoit Paper Co.
Scott Paper Co.
Sealright Company



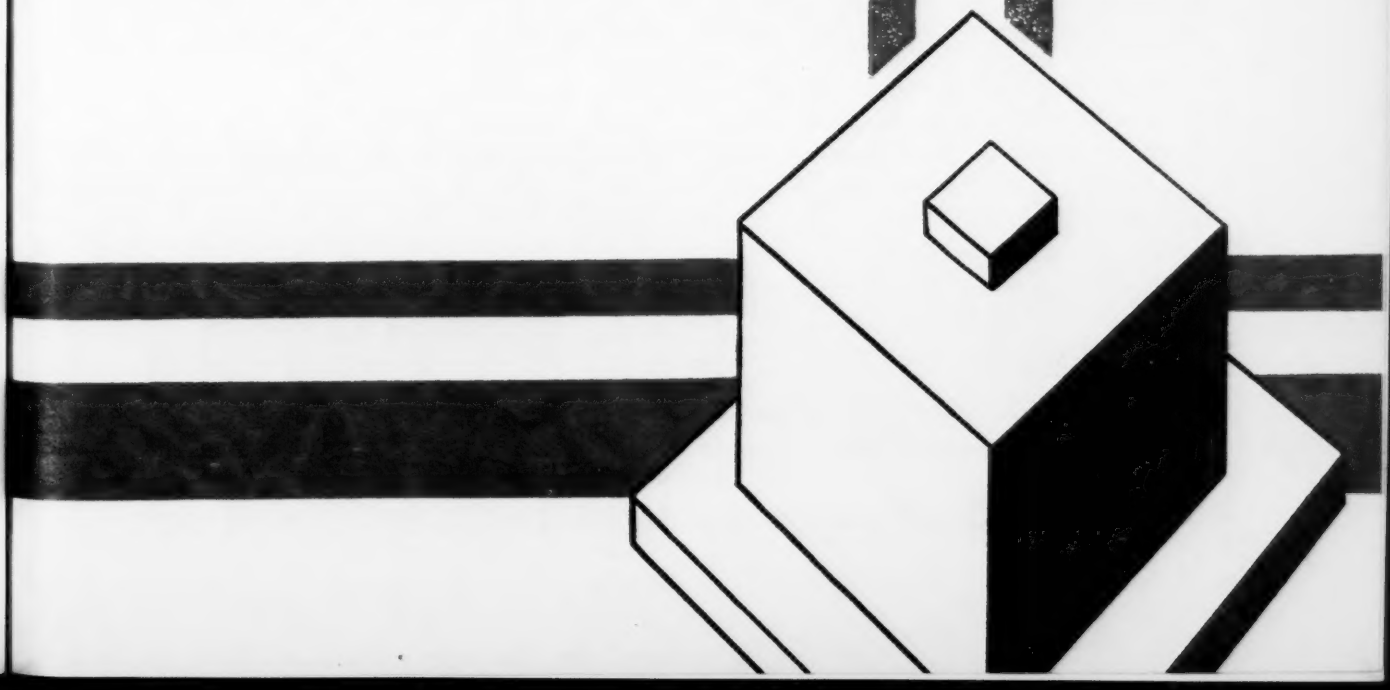
Fig. 46. Bliss Boxes

Columbus Packing Co.
Columbia Match Co. of Canada
Cooper Wells Co.
Cudahy Bros.
Cudahy Packing Co.
Wm. Davies & Co. Ltd.
Dold Packing Co.
Dominion Rubber Co. Ltd.
Diamond Match Co.
Dunn & McCarthy, Inc.
Endicott-Johnson Corporation
Federal Match Co.
General Match Co.
Glenlyon Print Works
Johnson Biscuit Co.
E. Kahns & Sons
Kendall Manufacturing Co.
Kingan & Co.
James S. Kirk Co.
Lambertville Rubber Co.
Lindsay Ripe Olive Co.
Lookout Oil Refining Co.
Los Angeles Macaroni Co.
Los Angeles Soap Co.
Mathieson Alkali Co.
Oscar Mayer Co.
John Morrell Co.
L. Mundet & Son
Sheppard & Myers Co.
Shredded Wheat Co. Ltd. (England)
T. M. Sinclair Co.
Snider Packing Co.
Swift & Company
Uniform Chemical Products Co.
Union Bleachery
U. S. Lime Products Co.
U. S. Rubber Co.
Van Camp Packing Co.
Western Stopper Co.
West Virginia Match Co.
Whitehouse Biscuit Co.
Wilson & Company
Warren Manufacturing Co.

DEXTER FOLDER COMPANY

28 West 23rd Street, New York, N. Y.

DISTINCTIVE



SNOW-MICA

Surface like wind-driven Snow

United's new offering of soil-resisting design mica for elite box styling.

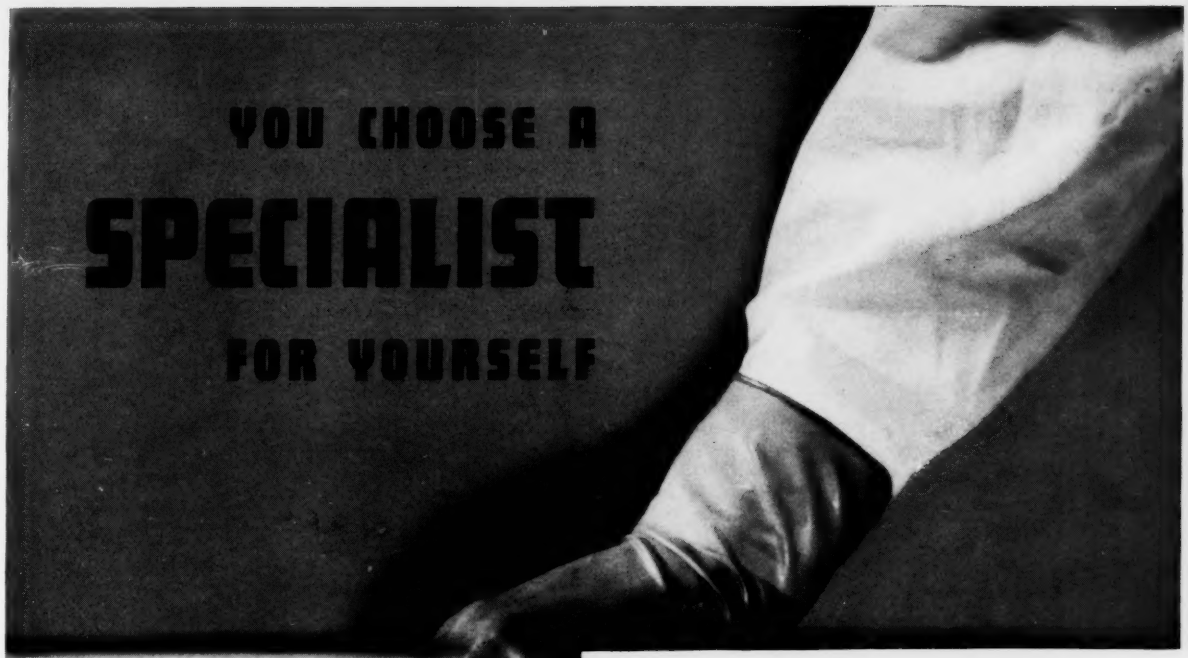
Avoid that handled appearance for increased sales appeal by covering your boxes with Snow-mica.

Prints well, ink stands out sharp and clear on this driven-snow surface.

ample sheets at your request



THE UNITED MFG. CO.
Springfield . . . Massachusetts





WHY NOT FOR YOUR PACKAGE?

● All of us employ specialists as a matter of course . . . the doctor . . . the dentist . . . the mechanic . . . men who have devoted their lives to the perfection of their particular work.

● These specialists we choose with greatest care. Isn't it reasonable to be just as particular about selecting a specialist to help you with packaging your products . . . to modernize old packages . . . to originate self-selling containers for NEW products.

● Dobeckmun offers you years of experience in developing Cellophane packages for hundreds of different products . . . years of experience in handling Cellophane ONLY . . . SPECIALIZED SERVICE at no additional cost! Let us study your packaging problem, as we have studied others, and submit a plan for INCREASED SALES through the use of Dobeckmun Cellophane Packages.

"CELLOPHANE" BAGS..PRINTED ROLL..CIGAR POUCHES

"DOPLEX" LAMINATED FABRICS AND GLASS SUBSTITUTE

THE DOBECKMUN CO.

CLEVELAND, OHIO

An organization devoted exclusively to the development and production of Cellophane packages.

XUM

Einson-Freeman displays WIN Again!



Johnson & Johnson Band-Aid Container — Winner of First Award in Display Container Division, American Management Association Packaging Competition.

■

What the Judges *said:*

Won out, not only because of its simple design but, also, because of its admirable spotlighting of the main sales points and the small amount of space that this display of a fast-moving item takes on the dealer's counter.

■

Band-Aid Container and three containers illustrated below received Honor Awards in "Modern Packaging" Competition.

FIRST AWARD

in the Display Container division of the Wolf Packaging Competition to the Johnson & Johnson Band-Aid Container—the famous Einson-Freeman "double-tier" patent.

FOUR Einson-Freeman designs selected for the "Modern Pockaging" Permanent Exhibition.

For practicality—space economy and ingenuity that SELLS, Einson-Freeman display containers are the choice of both experts and sales executives. For your package display problem—see Einson-Freeman FIRST!

What the Judges *said:*

It is a splendid example of what may be accomplished by combining an understanding of what the retailer wants in a package with the consumer's viewpoint.



EINSON-FREEMAN CO., INC.

LITHOGRAPHERS, LONG ISLAND CITY, N. Y.

Specializing in window and store display advertising

XUM

ECONOMIC MACHINERY COMPANY

Manufacturers of WORLD LABELERS

WORCESTER, MASS.

Chicago: Napoleon Savaria, 410 Monadnock Bldg. **New York: 15 Park Row** **Toronto and Montreal: Golden Gate Mfg. Co., Ltd.**

PRODUCTS

AUTOMATIC AND SEMI-AUTOMATIC LABELERS for applying labels on all types of bottles, jars, tumblers and other articles.

Economic Machinery Company has been engaged exclusively in the manufacture of labeling machines for more than thirty-five years.

Superior mechanical construction combined with the best of materials and skilled workmanship makes World Labelers the most satisfactory and durable machines obtainable. Thousands of satisfied customers heartily endorse Economic service.

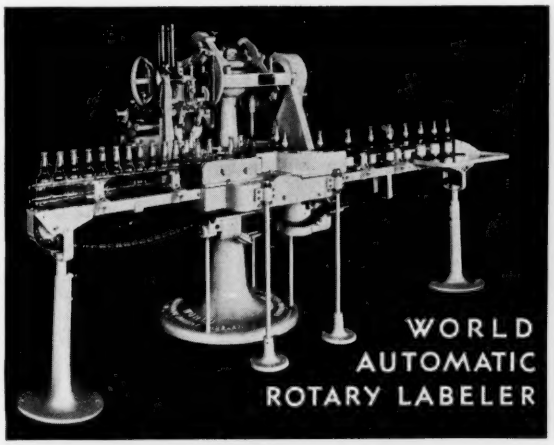
The company manufactures a complete line of hand-fed and automatic machines to meet all labeling requirements successfully and economically.

Every World Labeler is guaranteed to give satisfaction.

Write for advice regarding your labels, and send *labeled samples* of your bottles or packages showing the way you want them *labeled on the machine*. Detailed information and quotation will be sent to you promptly.

Let World Labelers solve your labeling problems.

All World Labelers are equipped with Zerk lubricating system.



THE WORLD AUTOMATIC ROTARY LABELER is the most efficient automatic labeler ever produced for labeling round bottles or jars. It is designed to meet the large production required in breweries and large beverage and food product plants.

The labelers are constructed either right-hand or left-hand. Where high speed equipment is installed our double unit will give any speed required and produce most satisfactory results.

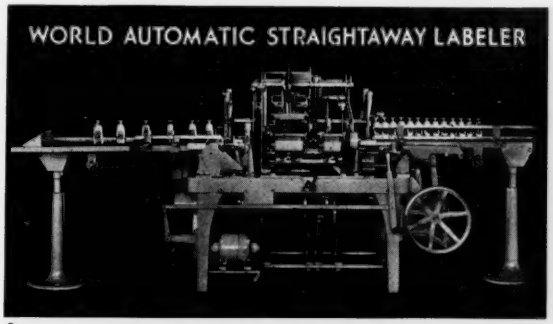
The labelers can be equipped with attachments for applying body labels only or body and neck labels on various sizes of bottles and jars. We can also furnish labelers for applying body and neck labels and foil, in one operation, on quart beverage bottles and other sizes.

Due to its simplified construction, all parts are readily accessible. The cost of maintenance is very low. Users of World Automatic Rotary Labelers reduce their labeling costs to a minimum.

Conveyor corner stands, and separate conveyor with independent motor drive, can be furnished as required.

The WORLD AUTOMATIC STRAIGHTAWAY LABELER is fully automatic, and has been designed to label flat, square, round, oval or panel bottles, modernistic jars or flasks and other packages. It is a custom built labeler, constructed for each individual customer's particular requirements.

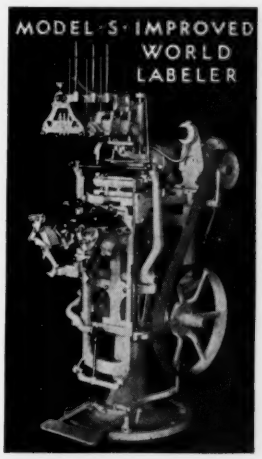
The bottles are automatically timed when conveyed into the labeler and, by means of special patented labeling mechanism, the entire surface of the label is gummed, and accurate registration of labels and smooth labeling guaranteed.



The labeler is built in various models. The single labeler applies front labels only, and the double labeler applies front and back labels in one operation. We also make special high production Straightaway Labelers for labeling two bottles at a time, operating at a speed of 100 or more per minute.

The labeler is equipped with feed and discharge conveyor and can be connected to other automatic units.

The labeler is heavily constructed and has proven most successful in many of the large production plants throughout the country.

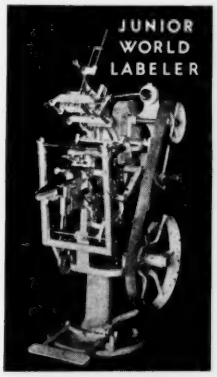


MODEL S IMPROVED WORLD LABELER is the latest type of the IMPROVED World Labeler, and has many exclusive mechanical features and improvements, developed by manufacturing experience of many years. It can be equipped with labeling attachments to label any size bottle, from small vials to gallon jugs.

The IMPROVED World Labeler is very generally used for applying body and neck labels and foil in one operation on quarts and other sizes of beverage bottles.

This labeler can be fitted with special attachments for applying strip labels on whisky flasks, and also for applying labels all around bottles.

It is ruggedly constructed, quiet and simple in operation, and will label your packages efficiently and economically year after year. It is the most flexible labeler on the market.



The JUNIOR WORLD LABELER is the smaller type of hand-fed semi-automatic, belt or motor-driven labeler. It is designed for applying body labels only on round bottles, jars, or other containers, where the label does not extend more than half way around the bottle.

It is simple in operation and will materially reduce labeling costs as compared with hand labeling.

XUM

SAMPLING WITH DYKEM PACKETS . . . THE SHORT-CUT TO BIGGER SALES



PICTURE the pleasure of a prospect receiving a sample that consists of several DYKEM PACKETS of your powder—each packet protecting the amount needed for a single use.

DYKEM PACKETS are made of Cellophane to give visibility to the contents. They are moisture-proof, air-proof, and grease-proof, as well as sift-proof.

Their size and shape permit them to be easily distributed, either in envelopes, in the wrappings of other packages, or loose.

The entire operation of making the packet, filling and sealing, is done in our plant. All you need do is to send us your product in bulk; we ship you the completed packets ready for distribution.

Inquiries invited from producers of face-powders, pharmaceuticals, dyes, concentrated foods and other powder preparations.

THE DYKEM COMPANY

2301 NORTH ELEVENTH STREET
ST. LOUIS, MO.

XUM

FANCY BOX PAPER COVERINGS

H & H

A MARK OF QUALITY AND SERVICE

FANCY BOX PAPER COVERINGS

OUR box covering papers are designed for the specific purpose of giving the maximum sales value to your goods. A great many of our papers are moderately priced, which make it possible for you to use them with little additional cost over ordinary papers.

•

We can furnish you with catalogue cover weight stock in most of our box covering designs. This service will give full advertising value to your announcements on any new package, by having the box covering, booklet or catalogue in the same design.

•

This insert is one of our many new attractive patterns.

•

SAMPLE BOOKS UPON REQUEST.

•

HUGHES and HOFFMAN

217-219 MERCER STREET ∴ NEW YORK, N. Y.

NRA

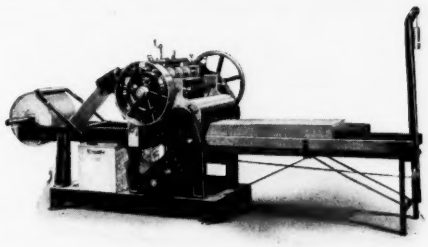
WE DO OUR PART

PACKOMATIC

PACKAGING MACHINERY

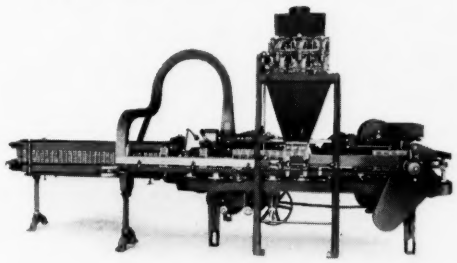
J. L. FERGUSON COMPANY, JOLIET, ILLINOIS

Branch Offices: NEW YORK CLEVELAND SAN FRANCISCO



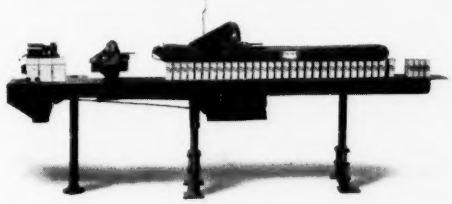
PACKOMATIC CARTON FORMING MACHINE

A shell making machine with speed up to 200 per minute. Easily operated. Chipboard is fed from roll, cut, scored, folded and glued. Requires one operator.



PACKOMATIC CARTON SEALER WITH AUTOMATIC NET WEIGHER

For sealing bottom flaps of cartons, weighing and filling into three cartons simultaneously, and sealing top flaps. Commercially accurate weights guaranteed at speed up to 60 per min. One operator required.



PACKOMATIC SEMI-AUTOMATIC CARTON SEALING MACHINE

Designed for simplicity in operation and adjustability. Specially adaptable for short runs of different sizes of packages. Furnished with Automatic Weigher or Filler, if desired.

Speed up to 25 packages per minute. One to two operators required.

Automatic Machines for all Packaging Purposes

Whether you pack in cartons or cans, there is a Packomatic machine that will enable you to produce better packages at lower cost. Some of the machines we make are as follows:

Carton Forming machines
Carton Sealing machines
Automatic Net weight scales
Automatic Gross weight scales
Automatic Volumetric fillers
Automatic Lining machines
Wax Wrapping machines
Automatic Cartoning machines
Semi-automatic Net weighers
Semi-automatic Gross weighers
Container Sealing machines
Can Labeling machines
Coupon Inserting machines
Special machines and devices

Packomatic machines are known from coast to coast for their reliable, efficient performance.

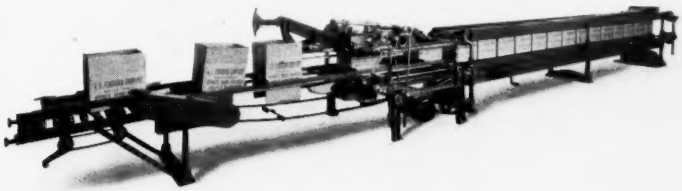


PACKOMATIC HAND GLUE CONTAINER SEALER

An easily and rapidly adjustable machine for carrying cases under compression. Adhesive is applied to inner flaps by the operator. An automatic trip controls the intermittently operated belts as the cases enter.

Both top and bottom sections are equipped with ball bearing steel rollers and both belts are driven.

Furnished in any length and for any desired speed.

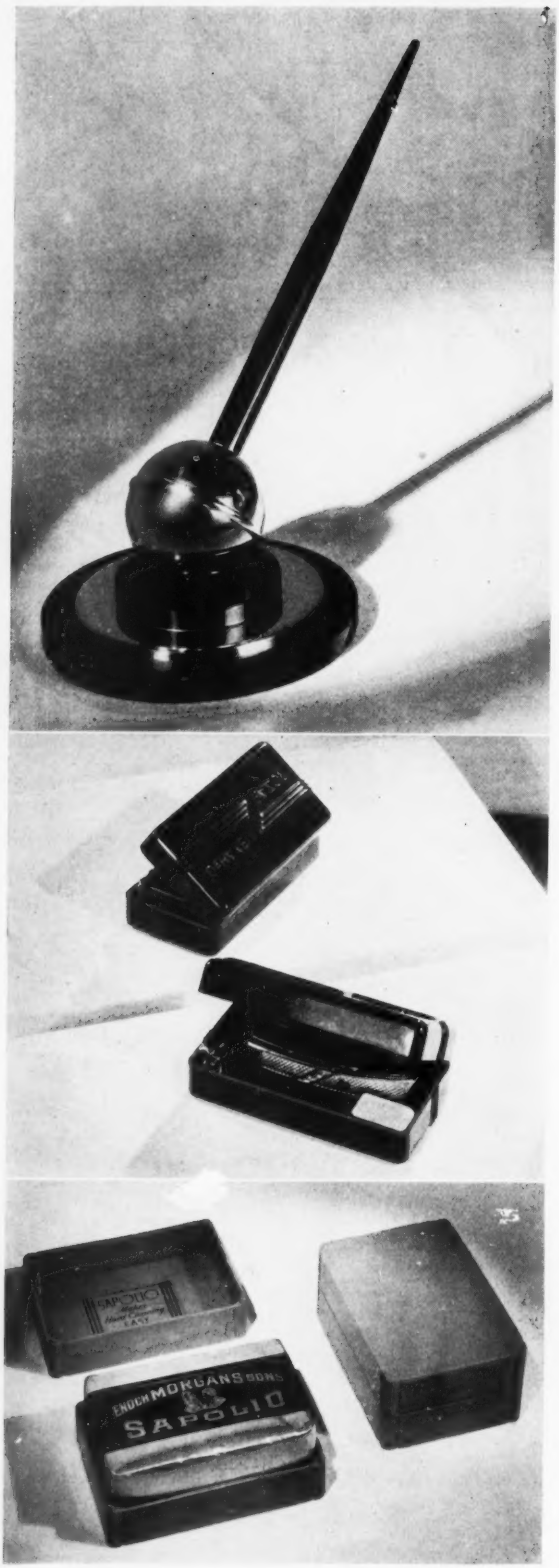


PACKOMATIC AUTOMATIC CONTAINER SEALER

For sealing both top and bottom flaps of paper containers simultaneously. The filled cases are automatically timed into machine from conveyer, bottom outer flaps opened, top inner flaps closed, adhesive spread on inner surface of all outer flaps which are then folded, and cases discharged between compression belts.

The range of adjustability cares for all cases of reasonable dimensions. Furnished for any desirable speed.

PACKOMATIC



3 SAMPLES

THAT TEST— AND PROVE— A MOLDER'S WORTH

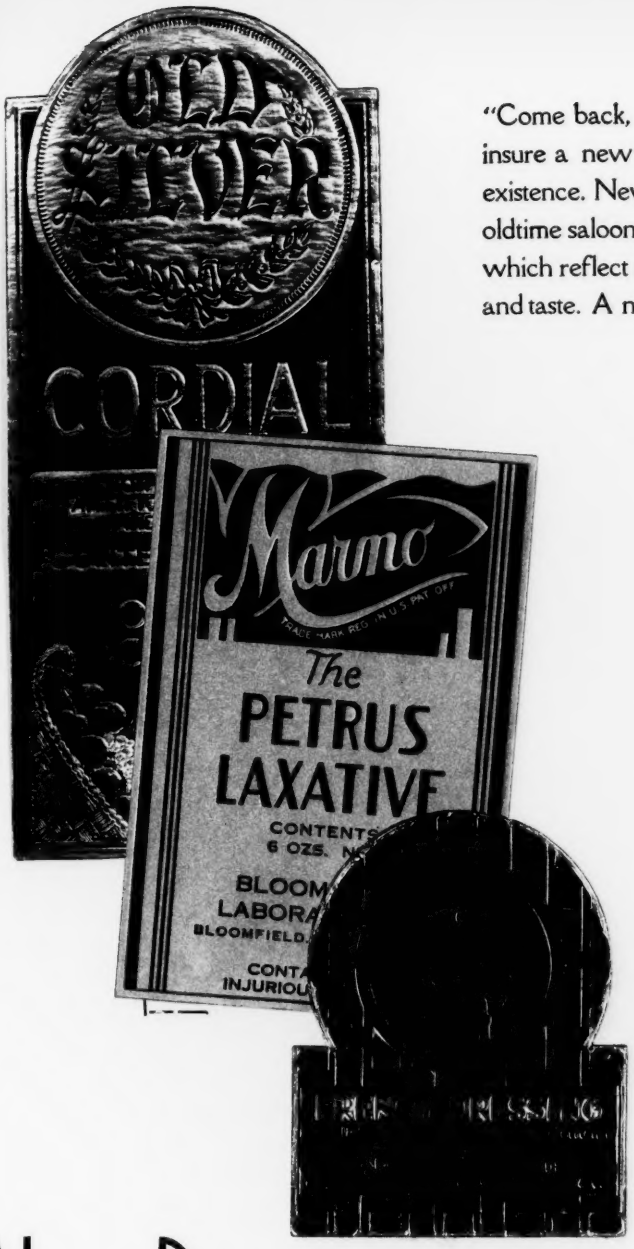
Fine plastic molding demands more than mere manufacturing skill. It calls for designing ability of a high order, for experience and enthusiasm to supplement and enhance modern equipment. We show here three typical products of General Industries' skill in molding—products that reproduce, to hairline accuracy, the fact—and the spirit of their designer's intention.

General Industries will be glad to cooperate with you in the design as well as in the production of your molded boxes, jars, closures, product accessories and displays. It brings to you, in addition to an unsurpassed plant, those invaluable intangibles of experience and skill which together produce fine molded packages.

•

THE GENERAL INDUSTRIES CO.

ELYRIA OHIO



"Come back, all is forgiven!" Modern appearance will insure a new deal to products freshly restored to a legal existence. New merchandising methods, divorced from the oldtime saloon and its sordid associations, demand packages which reflect modern standards of cleanliness, convenience and taste. A new label means putting the best foot forward.

Doctors used to think they looked more dignified if they wore beards. But that was long ago. Medicinal packages likewise do not benefit from messy mystifying printing. It's no sin to wear a smart, attractive label that makes the dose sweeter.

A bright, dainty label is the best introduction to something good to eat! It suggests a fresh product, purity, simplicity, ease of handling. The depression taught a lot of folks to dress up their packages. It was the only way to stimulate sales. The results must be O. K. because improvement continues. Just another proof that *poor labels endanger profits.*

New Designs by FOXON

227 WEST PARK ST. PROVIDENCE, R. I.

"LABEL LEADERS"

XUM

NRA MEMBER U.S.
WE DO OUR PART

—Repeat orders Prove the Sales Appeal of QUALITY

We suggest you carry a complete line of these high-grade

Gummed Products



Trojan Super Flat Gummed Papers



Sterling Gummed Paper Tapes—plain and printed

Cloth and Fibre-Bak Tapes—

TROJAN
REG. U. S. PAT. OFF.
CLOTH TAPES

Hollands and Special Gumming

THE GUMMED PRODUCTS CO.

Executive Office and Mills: TROY, OHIO

Chicago New York St. Louis Cincinnati Los Angeles

F. M. HOWELL & CO.

HOME OFFICE AND FACTORY
ELMIRA, NEW YORK

designers and manufacturers of LABELS - BOXES AND ADVERTISING

We Like The Game!

SOME FOLKS complain that their particular business is dull and monotonous. To us, our business is the most interesting and fascinating part of our life. What greater satisfaction can one ask for, than to help work out something new and attractive for a worthy product or article.

Mr. F. M. Howell established this business 50 years ago. Since then it has grown and prospered because the basic policy has been one of "fair play." Today our equipment is complete and our organization experienced in meeting the particular package problems in which we specialize.

Inside these pages we show some of our work -- labels of all kinds; folding and paper boxes; advertising displays, etc., which are the Howell specialties.

If you would like to talk with us about any package or advertising (display) problem, we invite your inquiry by letter, phone or wire.

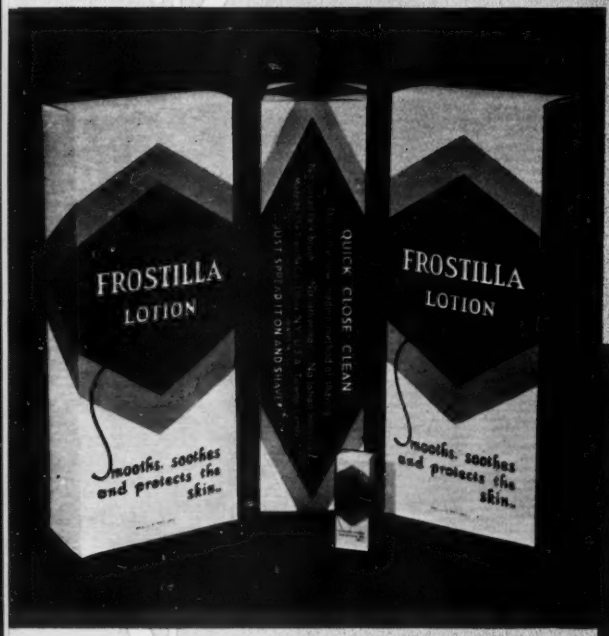
LABELS & BOXES
F.M.HOWELL & Co.
ADVERTISING
ELMIRA
NEW YORK
U.S.A.

XUM

HOWELL of ELMIRA — *Labels · Boxes & Advertising*



(To the Right) **FISHLINES** were once a utility product—now the package sells the goods. The Newton Line Company, Homer, N. Y., for whom these labels, cards and set-up boxes were designed writes us,—"Your company has been a great help to us in the successful marketing of our products."





(Above) **THESE** Jumbo Cartons (about 30" high) were made for the Shoemaker Corporation, whose Frostilla, Pompeian, and Scott & Bowne products are nationally known. Most any package can be enlarged to effective advantage for display purposes.



(Above) **DID** you ever imagine that humble leather shoe taps would be honored with special packaging? Yet here they are, a fine example of utility packages properly designed for the Eberle Tanning Company, Westfield, Pa.

XUM

HOWELL of ELMIRA ~ Labels ~ Boxes



PYREX dishes are a household name throughout the United States. These interesting boxes and displays were designed and manufactured in our plant to promote the sale of this popular product.

(To the Right) **FEVER** Thermometers sell faster when properly packaged as has been proven by the Faichney Instrument Corp., Watertown, N. Y. This individual set-up box with the display unit has attracted favorable attention in the drug trade.



(Below to Left) **OUR** services to the Shefford Cheese Company, Syracuse, N.Y. and Green Bay, Wis., have included designing and making labels, folding cartons and display material, including the famous refrigerator display which has attracted comment during 1933 in 13 trade magazines.





XUM

HOWELL of ELMIRA ~ *Labels ~ Boxes*



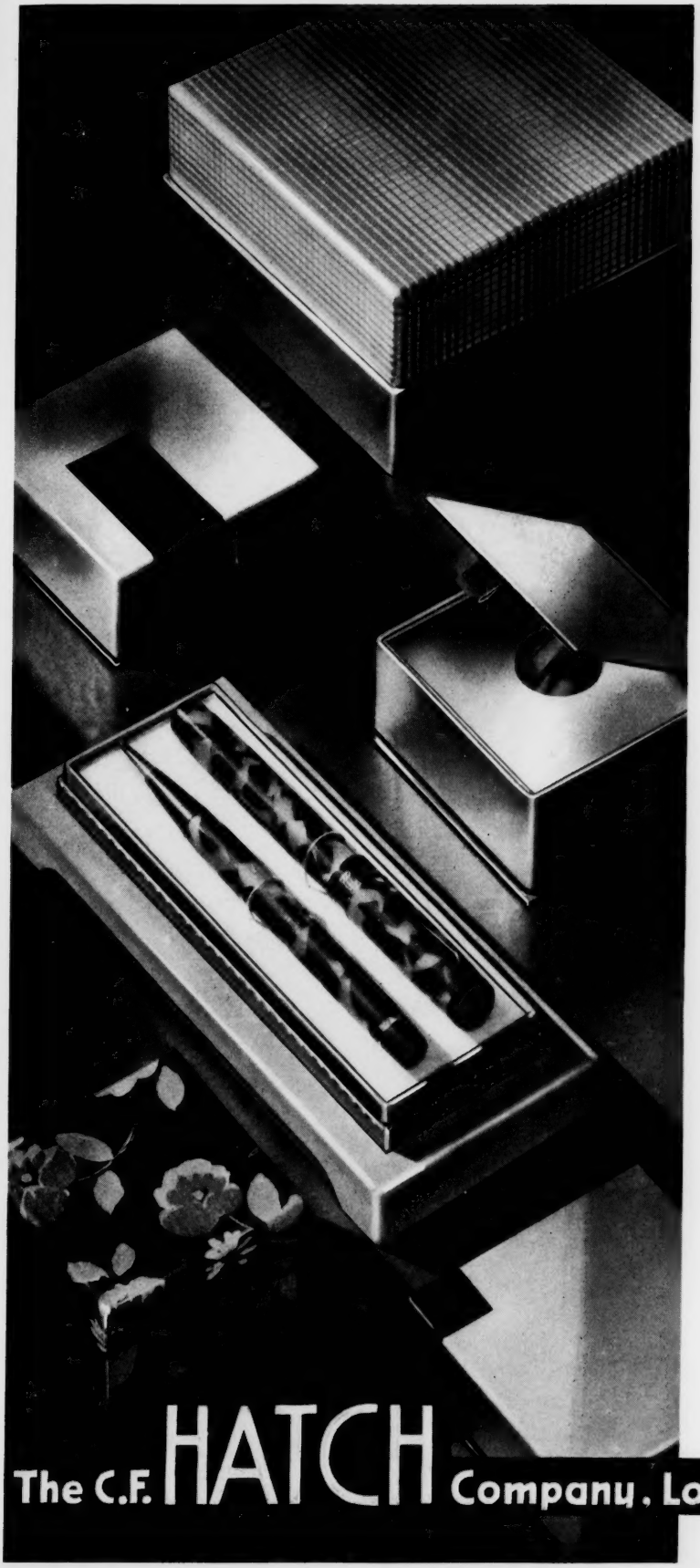


(Above) CIGAR manufacturers throughout the 48 states have long been familiar with Howell as a source of supply for cigar labels, cigar bands, cardboard packs and display cartons, such as are shown above.



IN the two groups, above and to the right, we show a variety of packages and displays, ranging from folding boxes to high-grade set-up styles, cut-out advertising cards of various sizes, and display cartons of unusual design, as examples of our craftmanship in both design and manufacture.

XUM



Eye Attraction
naturally leads to
Sales Appeal!

MANY of America's leading and most successful organizations have been continuous users of Packages and Containers by "HATCH of Lowell" for nearly fifty years.

Our designer-specialists succeed with watch-like precision in molding that intangible something into the Fancy Package, thus assuring it a *preferred position* wherever displayed.

Millions of sales are subtly influenced by the smartness of Packages that emanate from the House of HATCH at Lowell. Let us create a modern "idea" that will build favor for *your* product!

The C.F. HATCH Company, Lowell, Mass. U.S.A.

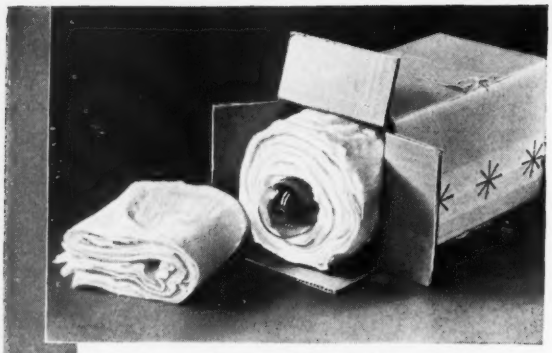
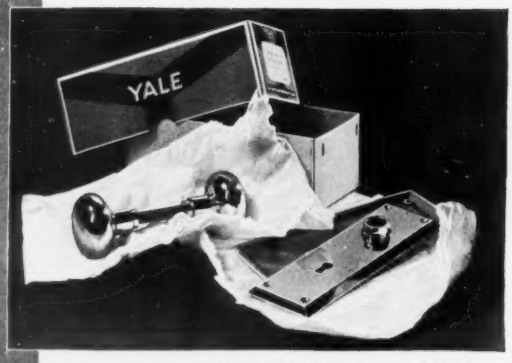


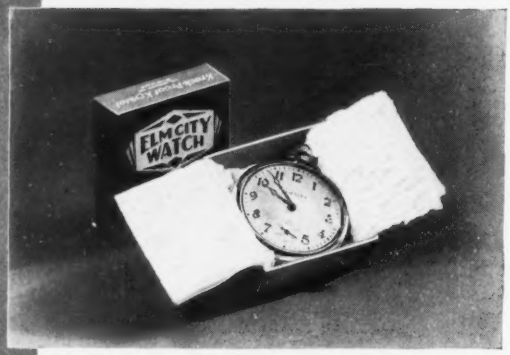
Illustration shows KIMPAK *used as a precaution against breakage of R. C. A. Radiotrons in shipping.*



Warren Telechron Clocks insure the protection of fine finishes to the customer by the use of KIMPAK.



KIMPAK *protects the polished surfaces of knobs and escutcheons made by The Yale & Towne Mfg. Co.*



Showing use of KIMPAK *by the New Haven Clock Company, to prevent damage to crystal and case.*

Protect with

IN hundreds of instances, KIMPAK Crepe Wadding saves time and money in packing articles for transit. It does away with sawdust, linters and low-grade packing materials—yet with surprising economies.

Protect your product with KIMPAK—whether it is a liquid in glass, a cosmetic, a vanity, or an item made of wood or metal with a fine finish. All products, no matter how low in cost, deserve KIMPAK'S super care in transit.

KIMPAK is especially valuable for packing liquids because it absorbs 16 times its weight in moisture and conforms to Postal regulations. It is amazingly low in cost and, because of its bulk and lightness, gives greater protection. Customers are doubly pleased with its clean, soft appearance.

It comes in rolls, sheets or pads, in various thicknesses — plain or backed with Kraft (smooth, creped or waxed) sample at right. Write for more details.

Kimpak

REG. U.S. PAT. OFF. & FOREIGN COUNTRIES

CREPE WADDING

Kimberly-Clark Corporation

Neenah, Wisconsin

Address nearest sales office:

Chicago
8 So. Michigan Avenue

New York
122 E. 42nd Street

Los Angeles
510 W. 6th Street

your product KIMPAK and save money

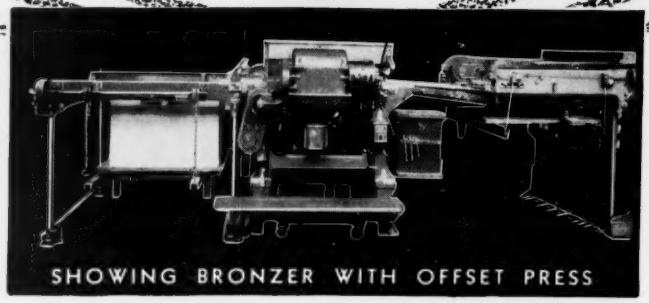
By using KIMPAK, The Hart Drug Corporation protects doctors' samples of Efemist inhalant against breakage.



THE LURE OF GOLD

QUALITY BRONZING

CLEAN PRODUCTION



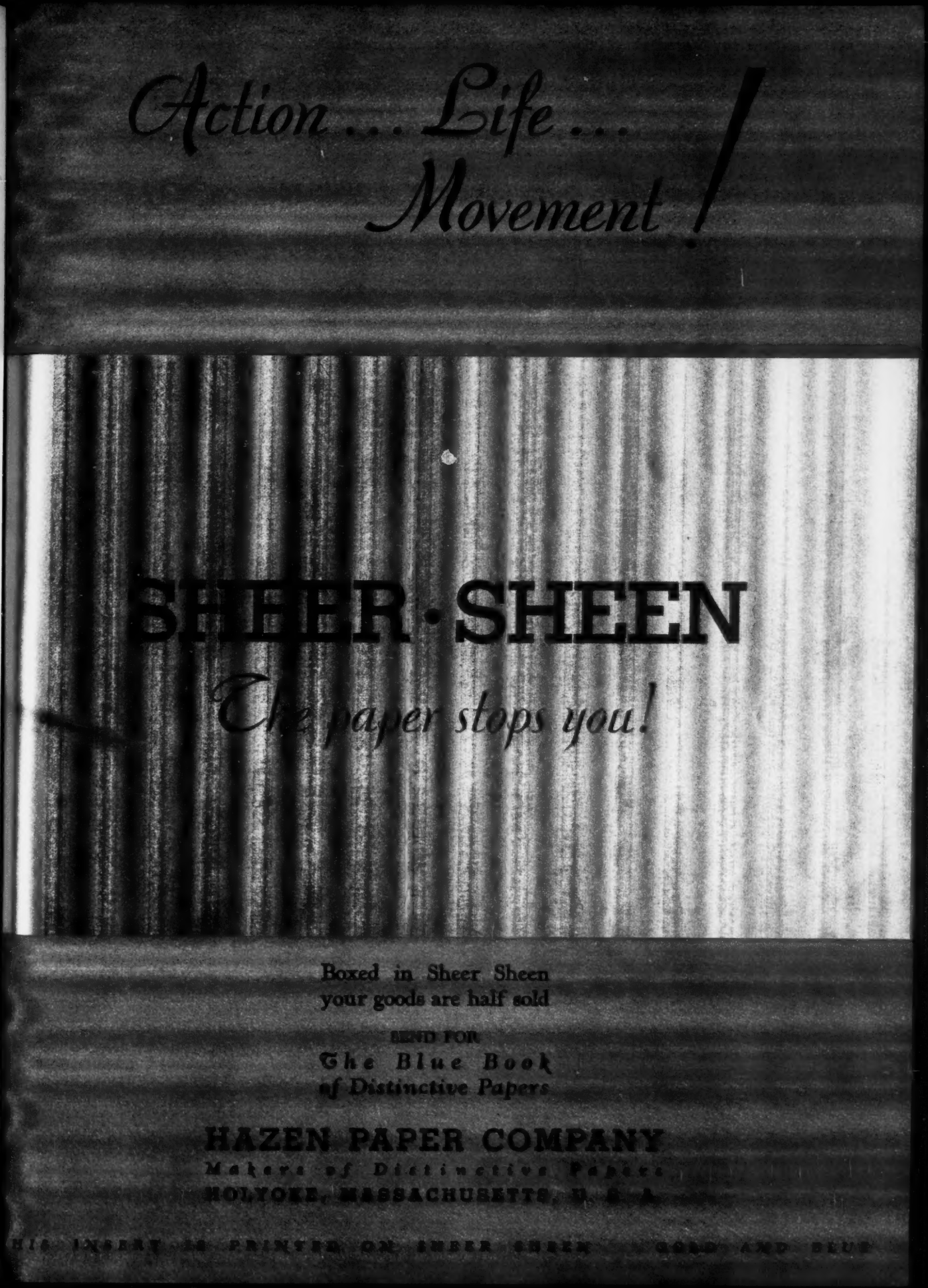
SHOWING BRONZER WITH OFFSET PRESS

MILWAUKEE BRONZER

Outstanding features:—Ball bearing construction insuring long life. Portable, so that it can be used with various presses. Very clean in operation—can be used in press room with no loose bronze flying around. Guaranteed to bronze and clean in one operation—all papers including heavy board stock. The original flat-bed bronzer. Guaranteed performance. Write today for prices and further details.

We are also selling a complete line of Aniline printing presses, guaranteeing perfect register.

229 W. Mineral St. C. B. HENSCHEL MFG. CO. Milwaukee, Wis.


Action ... Life ... Movement!
SHEER·SHEEN
The paper stops you!
Boxed in Sheer Sheen
your goods are half sold
SEND FOR
The Blue Book
of Distinctive Papers
HAZEN PAPER COMPANY
Makers of Distinctive Papers
HOLYOKE, MASSACHUSETTS, U. S. A.
THIS INSERT IS PRINTED ON SHEER SHEEN GOLD AND BLUE

XUM

HORIX

AUTOMATIC FILLING MACHINES

FOR ALL KINDS OF STILL LIQUIDS IN BOTTLES OR CANS

FOR Food Products such as Soups, Saucing, Syruping and Brining Canned Goods; for Bottling Catsup, Chilisauce, Vinegar, Cider, etc.; for Bottling Wines, Whiskeys, Pharmaceutical Liquids, Tonics, etc.

Sizes and types to suit all conditions. We illustrate a few models only. Submit your filling problems to us, stating output desired and we will appreciate the opportunity to quote on equipment that will serve you best and profit you most.

OUR GRAVITY-VACUUM SYSTEM

makes our fillers especially adapted for filling whiskey and other valuable liquids. No loss due to cracked or defective bottles; no bottle, no fill. The liquid supply to the filler may be located either above or on a level with the machine.

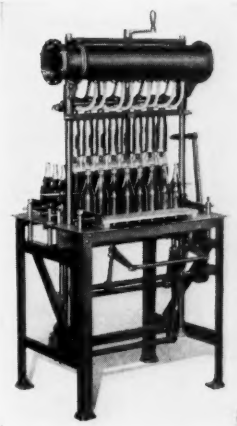
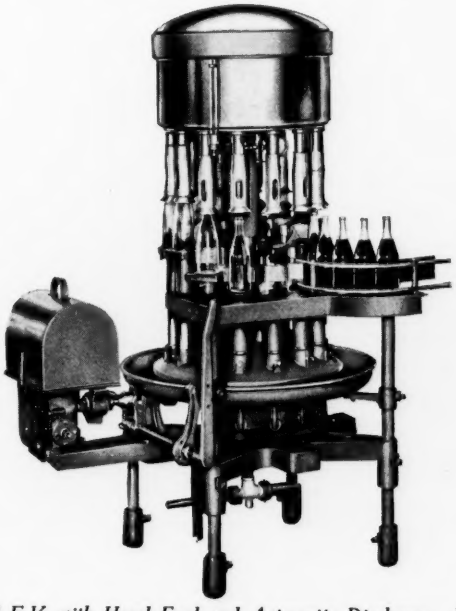
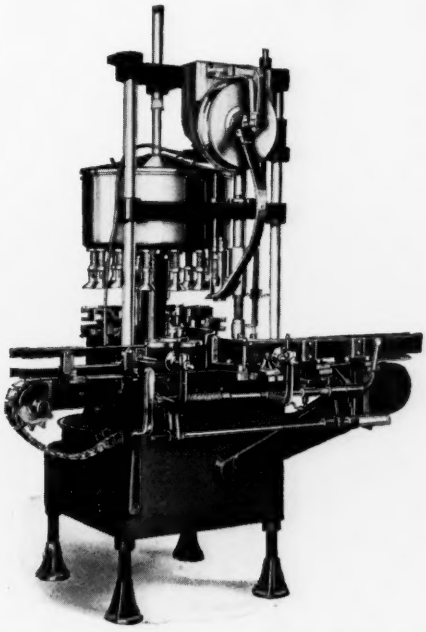


Illustration of Model N-V, showing filled bottles discharged to accumulating table. If desired, discharge side can be equipped (at extra charge) with conveyor to take away filled bottles. Also special models with Infeed Conveyor and power-operated are built to order.



Model E-V, with Hand Feed and Automatic Discharge. Model B-V (not shown) has 18 instead of 14 Filling Tubes. Also in Fully Automatic models H-E-V and H-B-V—with automatic Feed and Discharge.



Model H-E-C, Combined Filler and Capper for Bottles, from Splits to Quarts, Quick Change.

HORIX Fillers increase output, save labor, eliminate waste, are absolutely reliable—The product of twenty-five years' experience.

HORIX MANUFACTURING CO.

CORLISS STATION PITTSBURGH, PA.

XUM





Bottles, Tins, Slide Boxes or Cartons Filled Speedily, Economically, Accurately with UNIVERSAL Tablet Filling Machinery

The Ivers-Lee Universal Tablet Counting and Packaging machines will handle with equal facility coated or uncoated tablets. Various shapes such as oval, round or bean shaped products offer no hindrance to the perfect operation of these machines.

In FIGURE 1, we show a machine equipped with a vacuum feed for the filling of Aspirin tablets in dozen packets. The range of this machine depends entirely on your rate of production. Feeding attachments can be supplied to handle 3, 6, 12, 24 or 30 tablets in one operation and places them directly in the container—so closely that it is impossible to duplicate Ivers-Lee filling precision by hand methods.

The speed of this machine is directly variable to either number of packages per minute, or tablets per package. The machine demonstrated is handling two packages of 12's in each operation and has a speed of 80 to 100 packages per minute.

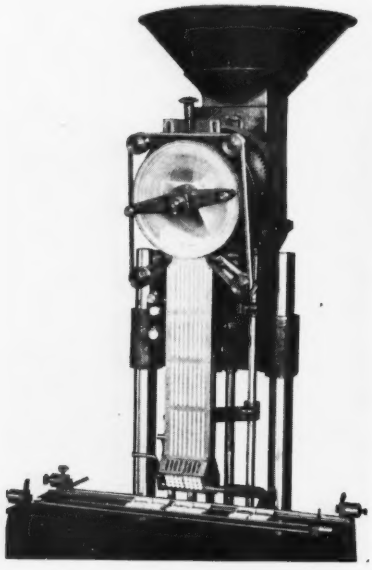


Fig. 1

FIGURE 2 shows the same Universal Tablet Counting and Packaging machine equipped with gravity feeding mechanism and designed for use where bulk filling is required into bottles, boxes, vials or bags. This machine will also count and fill sealed capsules.

The speed of filling varies with the number of tablets per package.

At 100 tablets per package, the speed is 50 filled units per minute. As the number of tablets per package is decreased, the speed increases up to 130 units per minute.

This machine will line up with your high-speed labelers, cappers and cartoners, working up to 100–130 packages per minute.

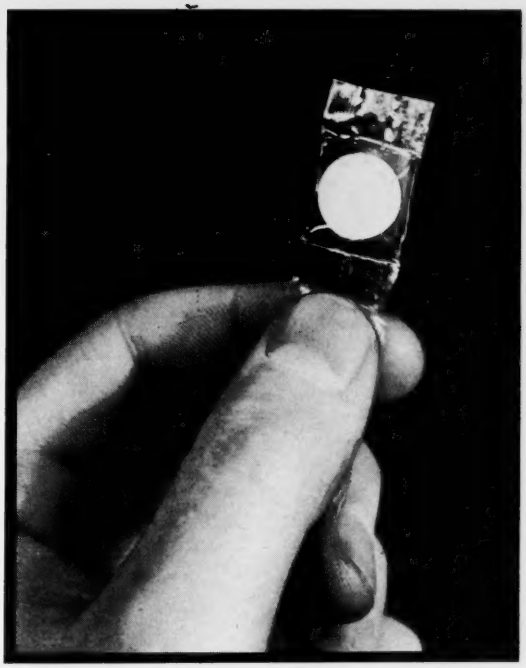


Fig. 2

Ivers-Lee Company

215 Central Avenue, Newark, New Jersey

• *"—the last one in the box, but it's a perfect tablet."*



THE SANITAPE METHOD of Packaging

Medicinal Tablets, Lozenges, Candy or Foods

Sampling a product to a known and responsive market is the key to profitable sales.

It is definite, tangible, controlled sales effort.

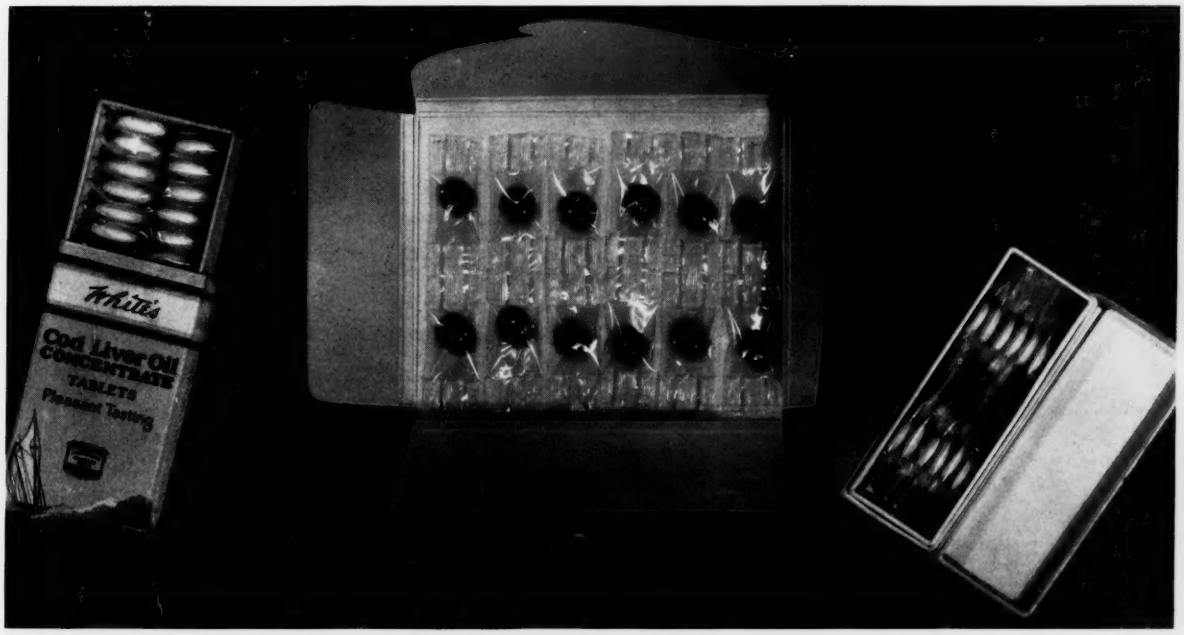
Sanitape is a method of packaging tablets for sampling in hermetically sealed, moisture-proof, air-tight pockets in a strip of paraffin-coated paper tape or moisture-proof transparent cellulose.

Your sample in Sanitape (1) Presents an ethical, quality appearance....(2) Retains its efficacy indefinitely....(3) Is NOT easily lost or discarded....(4) Provides economical distribution to a receptive market.

We either pack in Sanitape and return tablets to you....or.... Our Service Department will, in addition to Sanitaping, handle the assembly of the entire package ready for sale or sample distribution.

The numerous advantages of Sanitape are covered fully in a booklet, which we will be pleased to send on request.

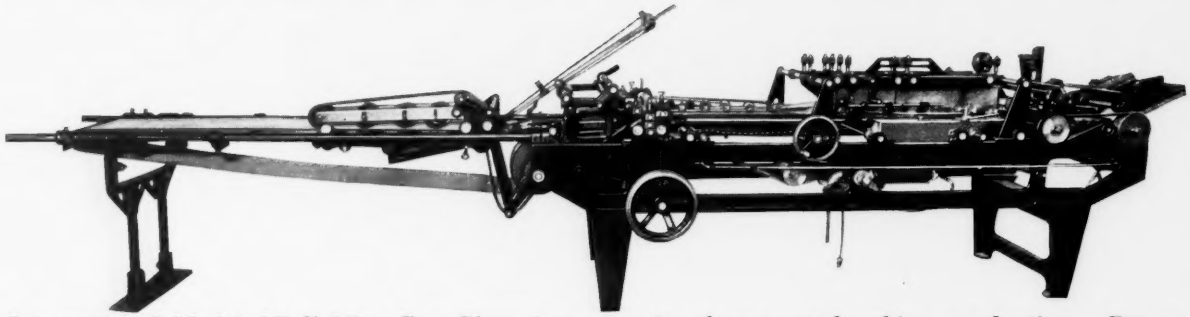
Our experience should be helpful to you. May we discuss the details, pertinent to your situation?



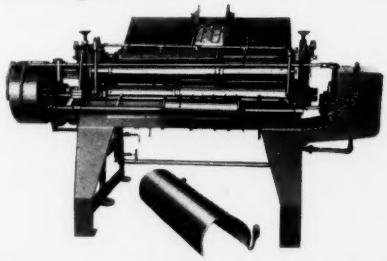
Ivers-Lee Company

215 Central Avenue, Newark, New Jersey

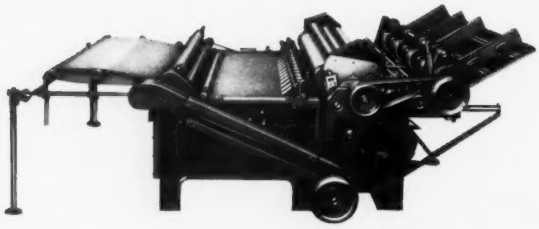
INTERNATIONAL
FOLDING BOX MACHINES



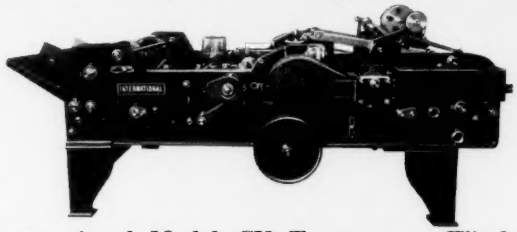
International Model SF Folding Box Gluer incorporating four score breaking mechanism. Range ¾″ to 6″ folded flat, 1⅞″ to 20″ in length.



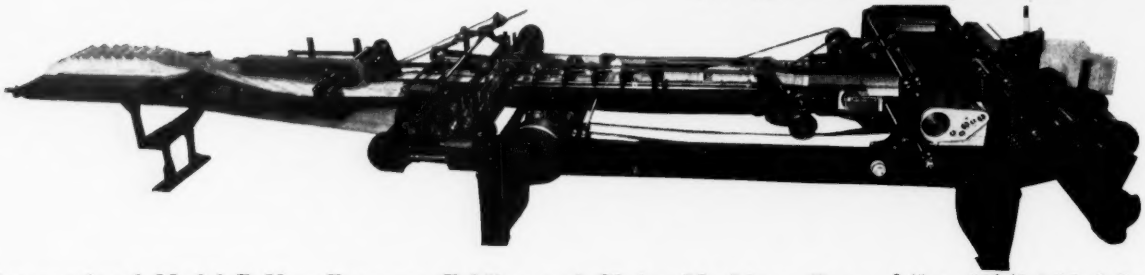
International Model 2P Hot Finish Paraffining Machine for coating either one or both sides of blanks or sheets leaving glue margins free of paraffine. Range 4″ to 36″ long, 5½″ to 22″ wide.



International Model RW High Gloss Paraffining Machine for making butter, lard, and ice cream cartons. Range 6″ to 45″ in length, 2″ to 45″ in width.



International Model CY Transparent Window Machine. Range small size blank 3″ long by 3½″ wide to 19″ long by 35″ wide; large size 3″ long by 3½″ wide to 38″ long by 35″ wide.



International Model B New Economy Folding and Gluing Machine. Range ¾″ to 20½″ folded flat, 3″ to 40″ in length

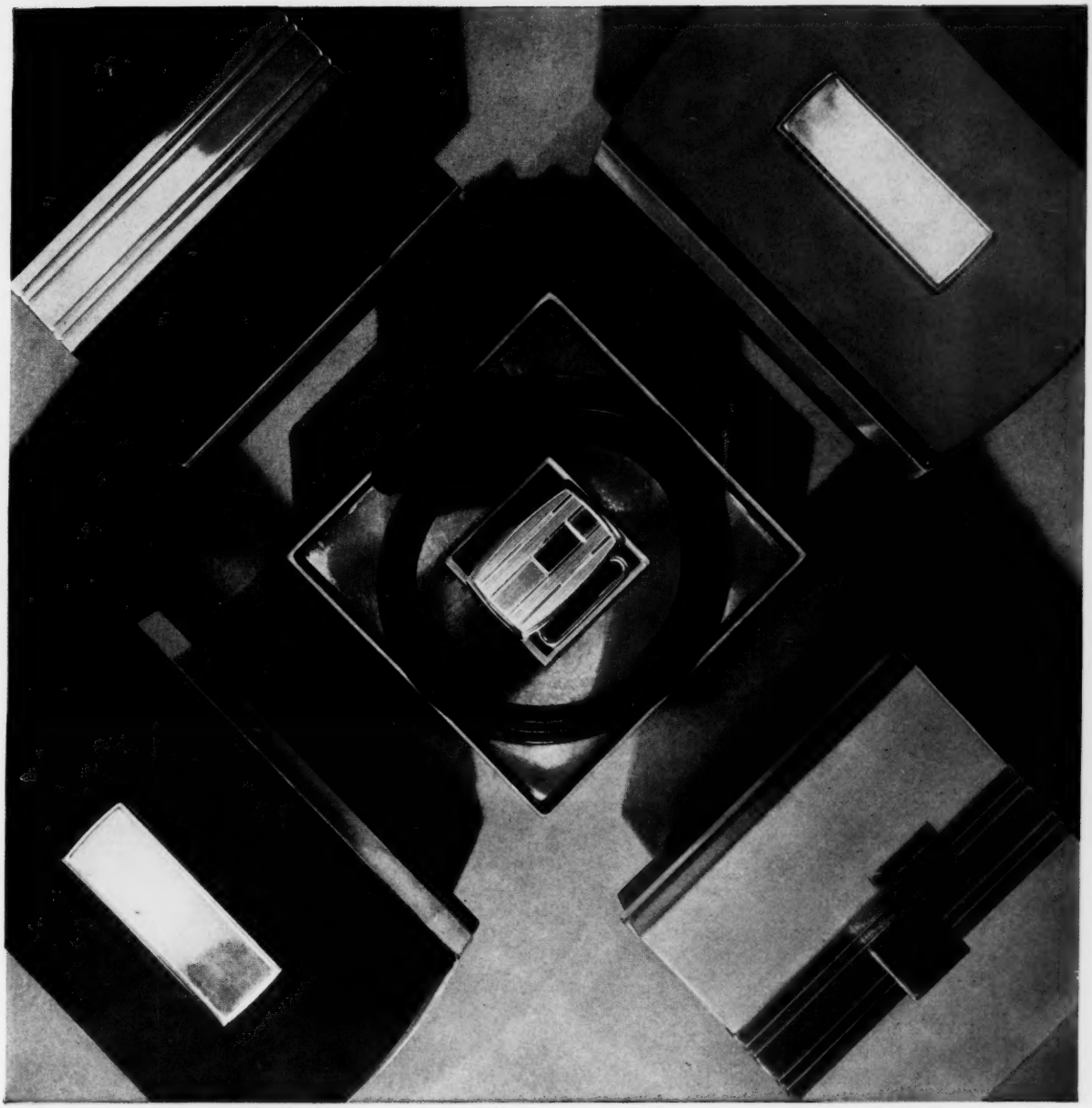
INTERNATIONAL PAPER BOX MACHINE CO.

NASHUA, N. H., U. S. A.

English representatives
Andrew & Suter
23 Goswell Road
London, E.C.I, England

Canadian representatives
Manton Bros. Co.
97 Elizabeth St.
Toronto, Ont.

XUM



Re-use containers for Hickok Belt Co. The boxes are chromium plated, gold plated and lacquered zinc die castings, produced by the Doehler Die Casting Co. Color photography by courtesy of The New Jersey Zinc Company.

HORSE HEAD 99.99+% UNIFORM QUALITY ZINC



NEW BOXES

NEW DESIGNS

NEW MATERIALS

. . . . . this time it's a ZINC Die Cast box. This is a new process and a new material offering design advantages and production economies the package designer cannot ignore.

Capable of reproducing as intricate designs as may be desired and of being economically finished in metal platings and lacquers, ZINC Die Castings make strong, light, non-warping boxes at a cost which is favorably competitive with other materials.

Attractive and permanent packages, die cast boxes are sure to advance the sale of a product with the "dual purpose" incentive. With their eyes on a new handkerchief or cigarette box many wives will buy their husbands new Hickok Belts in these new ZINC Die Cast packages.

THE NEW JERSEY ZINC COMPANY

160 FRONT STREET, NEW YORK CITY

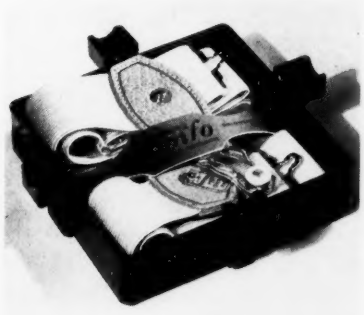
ZINC METAL ALLOYS · ROLLED ZINC · ZINC PIGMENTS · SULPHURIC ACID · SPIEGELEISEN

★

MOLDED CONTAINERS

with RE-USE APPEAL are always effective as sales aids







MANUFACTURERS confronted with the problem of increasing their sales volume, should consider the advantages of packaging their products in attractive, molded re-use containers.

Tell us what you make and we will offer some suggestions for suitable re-use containers made of colorful, molded plastic.

We specialize in the molding of parts as well as finished items, and are experienced in the use of plastics—pyroxylin, phenolic, acetate and urea compounds.

Among our present customers, we are proud to say, are the leaders in several lines of industry. We are in a position to offer good service, sound design and careful workmanship to a limited number of new accounts.

A. L. HYDE
MOLDED SPECIALTIES
GRENLOCH, N. J.

New York Office: Suite 1005, Fifth Avenue Building
Telephone Gr. 5-6282

XUM



...she does not always hold them!



Many a man has learned to his sorrow that "the Colonel's Lady an' Judy O'Grady" are indeed "sisters under their skins."

And many a manufacturer of quality goods has dolled up his latest product in "the most beautiful package in the world," only to have it flop with a resounding thud.

Why? Because *beauty is not enough!* How about the *utility* of the package? *Was it designed to keep goodness in and badness out?*

Your product—everybody's product—requires a *special* paper. We invite you to compare notes with us. We make many kinds of paper, perhaps just the *right kind* for your products; if not, we will tell you. If so, we may help save your next packaging venture from an untimely end, or give (as we have so often done) new life to the old.

KALAMAZOO VEGETABLE PARCHMENT CO.

KVP PARCHMENT
KALAMAZOO COUNTY
MICHIGAN

PROPER PACKAGING PAYS

XUM

EYE APPEAL MAKES BUY APPEAL



OUTSTANDING leaders in the drug, pharmaceutical, toiletry and food products fields are turning to Kimble in ever-increasing numbers to help solve their sampling and packaging problems. And for these reasons:

(1)—Kimble Glass Vials are automatic-machine-made for uniformity and fine finish.

(2)—They make the lightest weight glass package known, minimizing mailing and shipping costs.

(3)—They are retempered to insure maximum strength.

(4)—They are available in standard and special shapes and sizes to meet all requirements. A wide variety of closure designs and colors is available.

LARGEST GLASS PLANT OF ITS KIND IN THE WORLD

The Kimble Glass Company holds a unique position in the scientific glassware field. In addition to being the largest manufacturers of glass vials, ampoules and other small glass containers, Kimble fabricates a complete line of Chemical and Clinical Laboratory Glassware for test, control, analysis and research; a full line of Dairy Glassware for creamery testing and control work; and has a continuous production of glass tubing and rod—both crystal and in colors—for hundreds of industrial and commercial applications.

» » » »

Confer with Kimble on your requirements in small containers. We have saved time and money for many nationally known manufacturers, laboratories and industrial firms in their sampling and packaging. Kimble laboratory and dairy testing and control glassware is stocked by leading laboratory and creamery supply houses throughout the United States and Canada.

Fully illustrated literature—with prices and specifications—mailed on request.

KIMBLE GLASS COMPANY

VINELAND, NEW JERSEY.

NEW YORK • PHILADELPHIA • BOSTON
CHICAGO • DETROIT

CELLO
REG. U.S. PATENT OFFICE
RIBBON
Licensed under U. S. Patent No. 1,406,148

MADE OF

DU PONT CELLOPHANE



CELLO Ribbon is made by

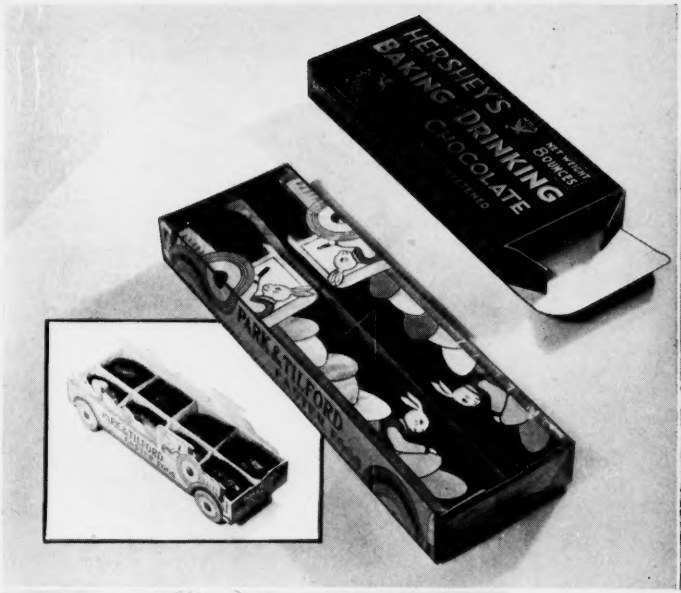
FREYDBERG BROTHERS
INCORPORATED
11-19 West 19th Street
New York, N. Y.

AS a package beautifier, nothing can compare in effectiveness with this lustrous, colorful tying ribbon. It transforms ordinary packages into packages of outstanding beauty and eye appeal . . . . stimulating their sales in a most gratifying manner.

Dealers, too, like Cello Ribbon decorated packages, and give them preferred display position in their stores.

Cello Ribbon cannot fray, soil or tarnish---and it is always crisp. It is easy to tie and its lustre is permanent. Cello Ribbon is economical to use for it is reasonable in price. It is obtainable in hundreds of color combinations, widths and effects. Write for samples and price information.

XUM











Typical examples of our peculiar ability to apply distinctive innovations in design and construction to folding and set-up boxes "without taking them out of their price class."

LEBANON
PAPER BOX CO.
LEBANON, PA.

NEW YORK OFFICE
51 MADISON AVE.

XUM

The only design a modern business can afford is the best it can buy

MODERN PACKAGE DESIGN

ROY SHELDON
11 WEST 42ND STREET
NEW YORK CITY
LACKAWANNA 4-6232

XUM

THIS is a specimen of Lithograp



LABELS

BOX TOPS

WRAPS

BANDS

NALCO PROCESS

LIQUOR LABELS

FOLDING

CARTONS

CUTOUTS

DISPLAYS

POSTERS

BRONZING

EMBOSSING

SALES HELPS

STYLING-DESIGNING

BROADSIDES

BOOKLETS

NALCO Lithographed Labels, Wraps, Cartons, Displays, and Sales Producing Devices combine distinction in design with perfection of execution.

At our disposal, are men of experience who are leaders in their field—Men with ideas that sell your products—well planned ideas, which embody originality with consideration for practicability and utility.

NALCO Lithography is the obvious choice, yet costs despite NALCO'S supremacy are decidedly in line with those of less suitable substitutes.

nalco

INCORPORATED

331—4th Ave., New York

GRamercy 5—5145

SALES DIVISION, GEO. SCHMITT & CO., INC. PLANT: BROOKLYN, N. Y.

LITHOGRAPHERS ESTABLISHED 1874

The only design a modern business can afford is the best it can bu

MODERN PACKAGE DESIGN

ROY SHELDON
11 WEST 42ND STREET
NEW YORK CITY
LACKAWANNA 4-6232

XUM

THIS is a specimen of Lithographed Satin,

Visualize such a label for your product.

Among its uses are included box tops, jar and bottle labels, tip-ons for Greeting Cards.

The versatility of the plant lends itself to the production of simple lithography or work of a highly specialized nature (such as the attached specimen).

LABELS
BOX TOPS

WRAPS
BANDS

NALCO PROCESS
LIQUOR LABELS

FOLDING
CARTONS

CUTOUTS
DISPLAYS
POSTERS

BRONZING
EMBOSSING

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NALCO Lithographed Labels, Wraps, Cartons, Displays, and Sales Producing Devices combine distinction in design with perfection of execution.

At our disposal, are men of experience who are leaders in their field—Men with ideas that sell your products—well planned ideas, which embody originality with consideration for practicability and utility.

NALCO Lithography is the obvious choice, yet costs despite NALCO'S supremacy are decidedly in line with those of less suitable substitutes.

nalco
INCORPORATED

331–4th Ave., New York
GRamercy 5–5145

SALES DIVISION, GEO. SCHMITT & CO., INC. PLANT: BROOKLYN, N. Y.
LITHOGRAPHERS ESTABLISHED 1874

PACKAGE ENGINEERING

THE STUDIO OF BEN LEWIS BRINGS A NEW SLANT TO YOUR PACKAGING, DESIGN AND MERCHANDISING PROBLEMS

THERE are in the field many competent package designers. We prefer not to be numbered among them. For, by every criterion of method or results achieved, we are Package Engineers. Artists, yes! Designers, yes! Merchandising men—assuredly! But more than this, we bring, to industry, for the first time a combination of these three essentials which every product-planner must possess.

Method . . . Before proceeding with any creative work, it is our custom to make a thorough inventory of the mechanical packaging facilities of our client. Then, with the co-operation of the client's advertising department or agency, the necessary survey of merchandising methods and conditions is undertaken. We familiarize ourselves with what has been done in the past, the situation as it exists . . . and what plans are being made for the future. The feature of distribution is studied. We ask our client to fix a cost of unit production to guide us in our plans. Then our creative work starts.

Costs . . . Very naturally no two jobs are alike . . . and therefore there can be no cut and dried scale of prices. We can only say that our clients have found our charges eminently fair. We will not speculate on possibilities nor will we compromise a job for a price.

At your invitation we shall be pleased to discuss packaging and design problems with you.

BENJAMIN LEWIS
A CORPORATION
424 MADISON AVENUE, NEW YORK
PLaza 3—2870

BENJAMIN LEWIS KENNETH N. NUNES



SYLPHRAP

REG. U.S. PAT. OFF.

The Aristocrat of Transparent Wraps



MANUFACTURED IN SHEETS AND ROLLS IN WHITE, PLAIN AND MOISTUREPROOF, AND IN ELEVEN ATTRACTIVE COLORS, ALSO IN EMBOSSED DESIGNS.



QUALITY'S BEST ATTIRE

(TRADE MARK REG. U.S. PAT. OFF.)

SYLVANIA INDUSTRIAL CORPORATION

Works, Fredericksburg, Va., U. S. A.

Executive and Sales Offices

122 East 42nd Street . . . New York

XUM

LUSTEROID CONTAINERS

VIALS, TUBES, JARS, ETC.

These containers possess many exclusive advantages which make them especially suitable for packaging certain products—such as powders, pastes, tablets, cosmetics, etc.

UNBREAKABLE Made of a tough, resilient, non-fragile material, these containers are practically unbreakable.

LIGHT They are remarkably light in weight, which means low transportation charges.

ODORLESS Furthermore, they are odorless, seamless, and leakproof.

COLORS Made in any color desired, including pastel shades and clear transparent. Lithographed in colors.

Samples of sizes and styles suitable for packaging your products will gladly be sent on request.



LUSTEROID CONTAINER COMPANY, INC.

•• FORMERLY LUSTEROID DIVISION OF SILLCOCKS-MILLER COMPANY ••

10 PARKER AVENUE, WEST SOUTH ORANGE, NEW JERSEY

VIALS, TUBES, JARS, AND SPECIALTIES

XUM

The

MIAMI VALLEY COATED PAPER CO.

MANUFACTURERS OF COATED BOX LINING

All Types—White & Colors

●

STOCK ITEMS

STANDARD White

an inexpensive general purpose box cover.

LITHOTINTS

a variety of eight colors, pastel shades, India, Ivory, Green, Rose, Blue, Orchid, Canary and Peach.

SINGLE COATED KRAFT

coated one side—Blue, Green, Orange, Black, Red and Yellow.

MIAMITONE

a medium priced blue-white semi-satin coated box cover.

BRILLIANTONE

an exceptional line of vivid colors, Scarlet, Orange, Goldenrod, Canary, Emerald, Turquoise, Dark Blue and Purple.

DOUBLE COATED KRAFT

double coated one side—high-gloss—non-bleeding—Purple, Dark Blue, Light Blue, Green, Chocolate Brown, Yellow, Orange, Black and Red.

SATIN COATED FOLDING BOX BOARD

A number one satin white coated board. An exceptional printing surface.

●

Distributed through your local jobbers

Samples on request

●

THE MIAMI VALLEY  COATED PAPER CO.

FRANKLIN, OHIO

XUM

List the leaders in the cosmetic field and you list Majestic's clients. Today, the art, the skill and the plant that, combined, have conquered the cosmetic industry, are at your service. The modern trend in all industry is to the metal package. The consumers of your product will readily accept an outstandingly beautiful (and outstandingly economical) metal package. Majestic's metal designing experts are at your service.



MAJESTIC METAL SPECIALTIES, INC.
200 VARICK STREET, NEW YORK CITY.

XUM



● **PACKAGED**
..to draw the gaze of trade..to guide hands that reach for QUALITY..unseen inside!

● **CONTAINERS**
that mark their contents for leadership in display..in trade opinion..in consumer acceptance.

● **YOUR BRAND**
..smartly packaged ..goes out to WIN!

METAL PACKAGE CORPORATION
110 E. 42nd ST., NEW YORK CITY
ESTABLISHED 1909
SALES OFFICES AND PLANTS • NEW YORK CITY • BALTIMORE • BROOKLYN • CHICAGO
THE FISCHER CAN COMPANY DIVISION • HAMILTON • OHIO

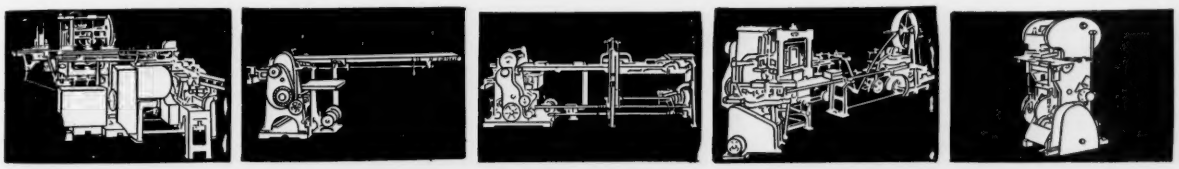
● **CONTAINERS**
...Styled and sized to suit...
Color Lithographed or Plain

36 ways to cut Costs!

NEW JERSEY
PRECISION
PRODUCTION UNITS

No New Jersey Automatic, semi-automatic, or manual-aid unit is offered for sale until it proves under actual manufacturing conditions every advocated advantage.

(If accompanying catalog is removed for more convenient reference, please enter below, where catalog is filed.
*Catalog Removed and Filed*_____)



A few users of New Jersey Production Units:

American Can Company
American Playing Card Company
American Tobacco Company
Bear Brand Hosiery Company
Brown & Bigelow
F. N. Burt Company
The Canister Company
Davis Baking Powder Company
Dennison Mfg. Company
R. R. Donnelly & Son
E. I. duPont deNemours
Einson-Freeman Company
Esterbrook Pen Mfg. Company
Florsheim Shoe Company
Forbes Lithographing Company
Goodyear Tire & Rubber Company
Heller & Merz
Hood Rubber Company
Andrew Jergens Company
Johnson & Johnson
Kaffee Hag Corporation
Kalamazoo Stationery Company
National Biscuit Company
National Blank Book Company
Old Dominion Box Company
Pabst Corporation
W. C. Ritchie & Company
W. F. Schrafft & Sons
Shoup-Owens Company
A. Stein & Company
Taylor Atkins Paper Company
Wadsworth Salt Company
Warner Brothers Company

Consultation on Individual Production Problems without obligation
write to

NEW JERSEY MACHINE CORPORATION
WILLOW AVENUE, HOBOKEN, N. J.

Chicago Office, 549 W. Washington Blvd.

XUM

Precision

PRODUCTION UNITS

FOR

MODERN MANUFACTURING

Open to the Right for:

	Page
Liners and Labelers	1
Fully Automatic Boxmaking Machines	3
Carton Covering Machines	5
Automatic Operator for Box Wrappers	7
Self Operating Box Wrapping Machine	7
Shell Making Machine	7
Box Gluing Machine	9
Shoulder and Neck-Making Machine	9
Box Doming and Embossing Machine	9
Automatic Boxmaking Units	11

Open to the Left for:

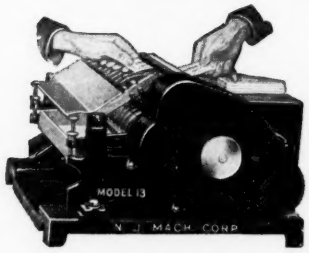
Pasting, Gumming and Gluing Units	2
Labeling and Tip-on Machines	4
Round Can Labeler	6
Package Banding Machine	6
Box Shaping Machine	6
Sheet Combiners, Liners, Mounters	8
Cardboard Grooving Machine	8
Special Purpose Machinery	10

A catalog of Automatic, Semi-automatic, and Hand Controlled Units for producing the results of Skilled, Intelligent Labor, with greater precision, and definite economies in production cost.

NEW JERSEY MACHINE CORPORATION

1620 WILLOW AVE., HOBOKEN, NEW JERSEY
549 W. WASHINGTON BLVD., CHICAGO, ILLS.

PASTING, GUMMING AND GLUIN



TABLE

Mo

A portable machi
ming or gluing la
ing a pre-determi
sive *evenly* on la
feed operation
times faster than

AUTO-GUMMER

Model 15-29

A unit which sets a pace for employees. Applies an even, pre-determined quantity of adhesive on labels or box-wraps at a regular speed. Feed conveyor "seasons" adhesive so it takes hold instantly, without curl or blister.





HEAVY DU

Mod

A heavy duty pa
gluing machine f
labels. For mou
cardboard, wood,
and a host of oth
chines up to 50 in

ROLL GUMMING MACHINE

Model 37

A complete plant for gumming or coating, drying *and* re-winding paper from a roll. For waterproofed, adhesive-coated, varnished or other prepared papers.



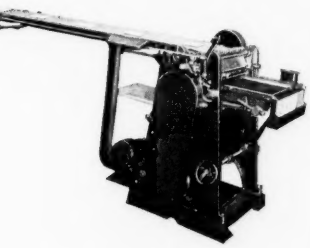
XUM

ND GLUING UNITS

TABLE GUMMER

Model 13

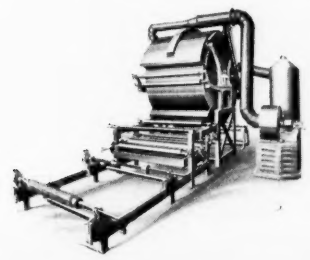
A portable machine for pasting, gumming or gluing labels. Permits applying a pre-determined amount of adhesive *evenly* on labels. Simple, hand-feed operation delivers labels ten times faster than hand-gluing.



HEAVY DUTY GUMMER

Model 30

For heavy duty pasting, gumming or gluing machine for large sheets or labels. For mounting or lining of cardboard, wood, composition, leather and a host of other materials. Machines up to 50 inches in width.

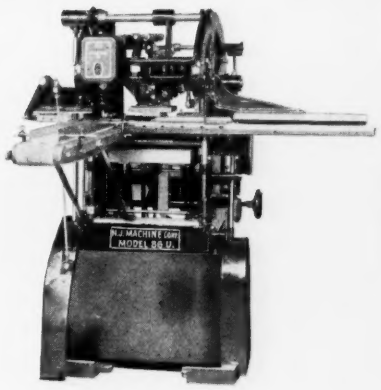


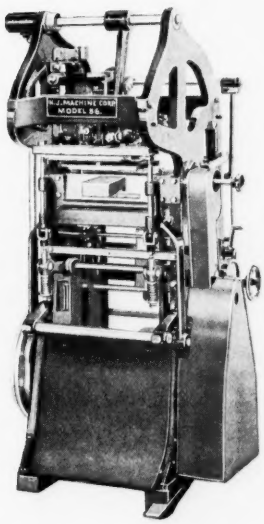
LABELING AND TIP-ON MACHINES

LABELRITE

Model 86 Universal

A universal labeler for the finest type of work. Capable of register labeling; works without glue-oozing or blemishes. Conveyor fed, fully automatic, and for boxes of all shapes, containers, jars, and wherever accurate quality labeling is desired.

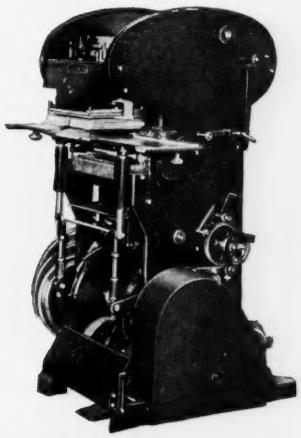




LABELRITE

Model 86 (hand fed)

A unit capable of producing the finest work. Specially designed for end-labeling boxes, for top labeling boxes; for pasting Greeting Cards and Title-sheets on books and covers. Easily changed for various size and therefore excellent for either long or short runs.



LABELRITE

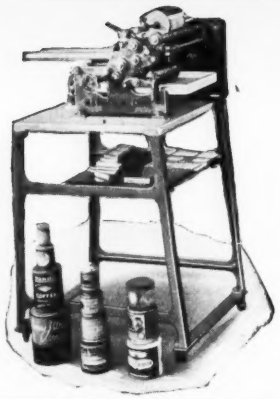
Model 86 P.M.

Another type of Labelrite built for tip-on work, spot-mounting or solid mounting. Designed especially for calender picture mounting, for assembling photo-mounts, tipping on Greeting Cards, etc.

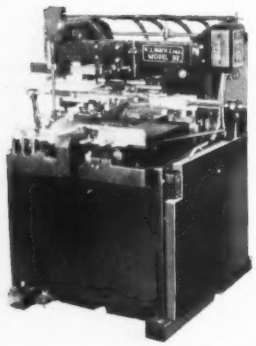
XUM

ROUND CAN LABELER

Model 12



For labeling cylindrical containers of glass, metal, cardboard or fibre. Especially designed for small or large runs, and for varying sizes. Instantaneously changed to register on various size cans. Range from 2″ to 8″ height, and from 2″ to 7″ diameter. Enables a girl to do a previous day's work in an hour or two.



PACKAGE BANDING MACHINE

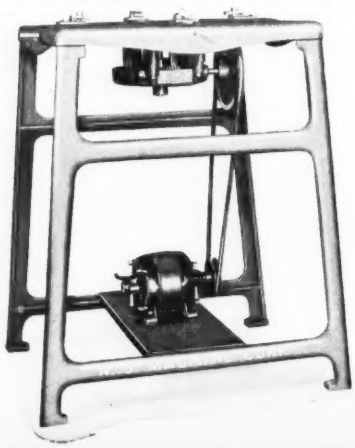
Model 92

For wrapping a band around pre-determined amounts of merchandise. Requires only a ¾ inch overlap, and produces 8,000 packages per day. This "Speedbander" earns its name. Made for fulltime operation, with precise glue control and automatic stop. Maximum production with unskilled help. Fool-proof and easy to operate.

BOX SHAPING MACHINE

Model 76

A motor driven machine that will shape boxes so that they set up square. Used to overcome bulging or warping. The machine is mounted on a stand, with casters, for ease in moving to desired part of plant.



SHEET COMBINERS
MOUNTING M

FULLY AUTOMATIC COMBINER

Model 51

For mounting pictures, labels or flexible sheets of paper on heavier paper, cardboard, envelopes, box-shooks, metal, wallboard, books and folders. Feeds from hoppers, applies pre-determined quantity of adhesive, seasons combined units through three pressure rollers, and has a capacity up to 35 pieces per minute. Handles wide range of sizes.



NEV

For pa
prints,
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smooth

CARDBOARD GROOV

Model 27

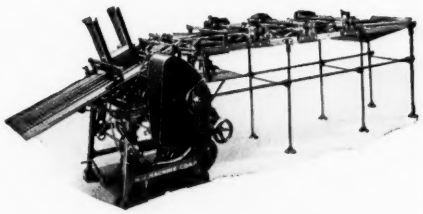
For grooving and trimming cardboard, preparatory for slide-box making, partitions, or case-making. Feeds board in either rolls or sheets. A time-saver in box-plants. Equipped to rewind grooved and trimmed board in rolls.

XUM

OMBINERS, LINERS, AND
UNTING MACHINES

INER

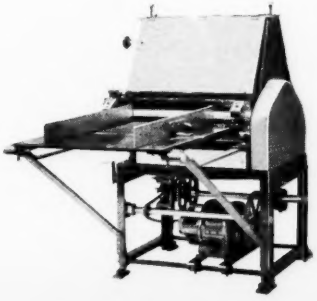
flexible
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NEW JERSEY AUTOMATIC MOUNTER
Model 57

For pasting or combining *large* sheets of paper, prints, lithographs, etc., to cardboard, felt, or similar products. Used for window-displays, and advertising cut-outs, and lining of board with fancy papers, up to 50 inches in width. A smooth, blister-free job is assured with this unit.

RD GROOVING MACHINE
Model 27



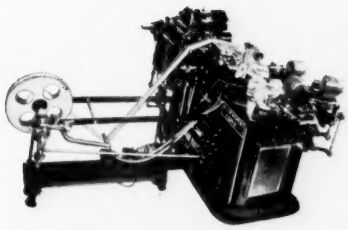
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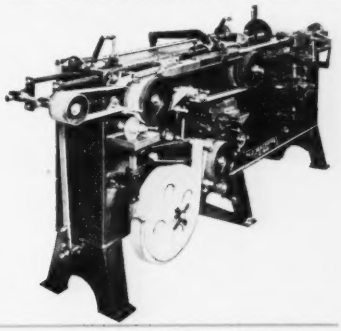
SPECIAL PURPOSE MACHINERY FOR VARIOUS USES

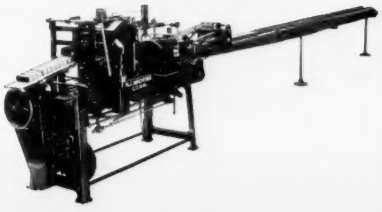
Special machines, fully, or semi-automatic, or manual aids, are continually being built by New Jersey Machine Corporation engineers. They are designed to do certain specific jobs and most of them are highly specialized. From among them we show a few, selected to illustrate the scope of our service, to American manufacturers.

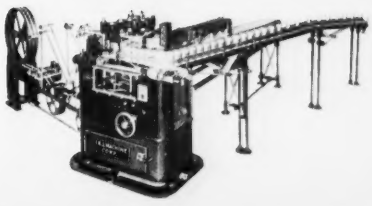
It would be a violation of confidence if we gave details of these machines, but quite a few of them, such as the Coin Wrapper, the Can Sealer, and the Three-Side Labeler,—three of those shown, permit reference for discussion. Even a casual glance at the list of nationally known manufacturers for whom we have designed special-purpose machinery will indicate the many diversified industries we have had the pleasure of serving. Any call to discuss an improved, or a mechanized process brings a prompt response, and we cordially invite such requests, secure in the knowledge of satisfaction inspired by what we have accomplished in the past.

NEW JERSEY MACHINE CORP.
SIXTEENTH STREET, cor. WILLOW AVENUE
HOBOKEN NEW JERSEY









(Printed in U.S.A.)

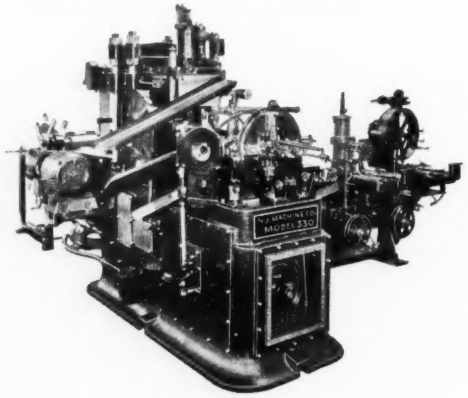
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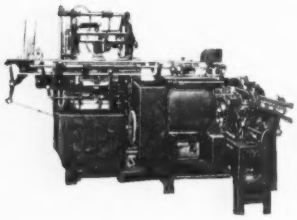
AUTOMATIC BOXMAKING UNITS

FROM ROLL BOARD TO FINISHED BOX

Model 330

The most improved and most efficient box making equipment for small and medium sized boxes. Truly a box plant in one compact. and easily operated machine. It blanks out boxes, either rectangular or odd-shaped from board in the web, strips box with paper. turns paper over and in, also, if desired thumb-holes or shapes boxes.





BLANKET TOP BOX EQUIPMENT

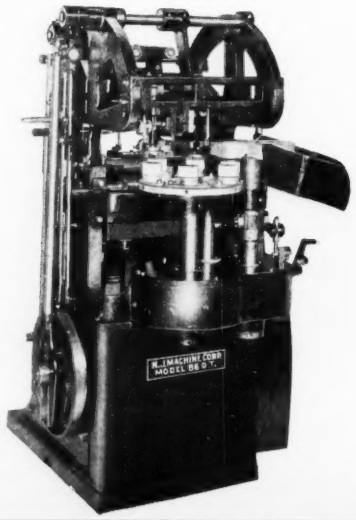
Model 133

Completely automatic box-making unit for producing square, tri-angular or multi-cornered odd shaped boxes. Automatically produces many of the so-called "hand made" types. Wide range of size, precision and speed are popular features.

VARI-PURPOSE BOXMAKER

Model 86 D.T.

An invaluable unit for boxmaking built with a "double turret" for seed and a new variety of work. For making powder pouches or deLuxe boxes; for blanket-topping of boxes; for plain labeling of round, odd-shaped or rectangular boxes.

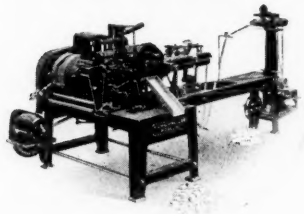


BOX GLUING MACHINE

Model 55

A unit for applying glue to the inside of boxes, prepa
tory to inserting necks or shoulders. Feeds from
conveyor, and made to hook up with other boxmaki
equipment.

FULLY AUTOMATIC SHOULDER



Producing co
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BOX DOMING MACHINE

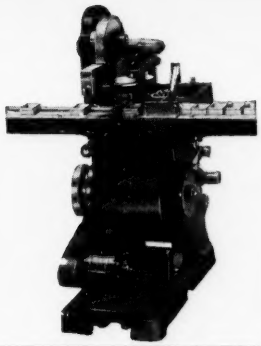
Model 106

A new, speedier, more efficient domer and embosser for boxes. Multiforms permit high speed and substantial economies over any other method. Can be synchronised with other equipment, and is conveyor-fed, ejecting automatically.



XUM

CHINE



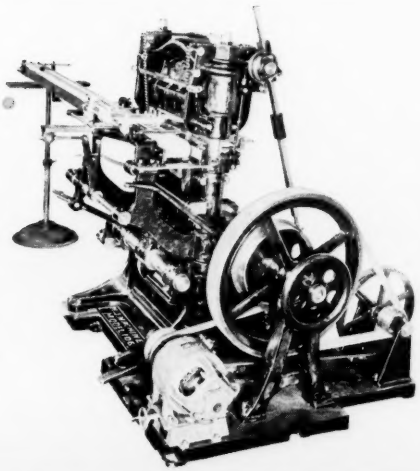
e of boxes, prepara-
rs. Feeds from a
h other boxmaking

HOULDER and NECK EQUIPMENT

Model 66

Producing compl te paper-covered and turned-in-on-one-end necks or shoulders. Flat necks feed from a hopper, pap r taken from a roll. Minimum waste, high speed, accurate operating equipment.

NE



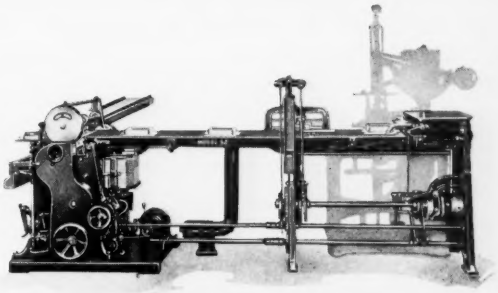
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AUTOMATIC OPERATOR FOR BOX WRAPPERS

SPEEDFEED

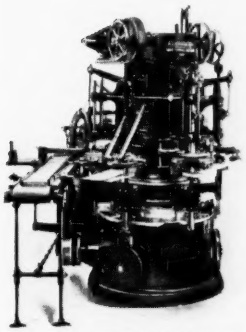
Model 52

Exactly as the name implies, a speedy feeder for the wrapping machines. Entirely eliminates the skilled operator, increases machine production, and does a better job than hand work. *One employee can feed two wrappers with the SPEEDFEED.*



SELF- OPERATING BOX WRAPPING MACHINE

Model 98

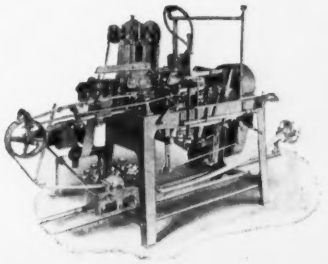


Produces a complete wrapped box; in tandem will turn out both box and cover, being fed cartons at one station, and wraps at another. Works faster, and produces better boxes than either hand or semi-automatic methods. Excels in production runs, and where accuracy in wrap spotting is essential. Ideal for handkerchief boxes down to ¼ inch depth.

SHELL MAKING MACHINE FOR "SLIDE" BOXES

Model 64

For making covered push boxes, shells or box slides. Turns in covering paper at both ends. Capacity 30 slides per minute.



XUM

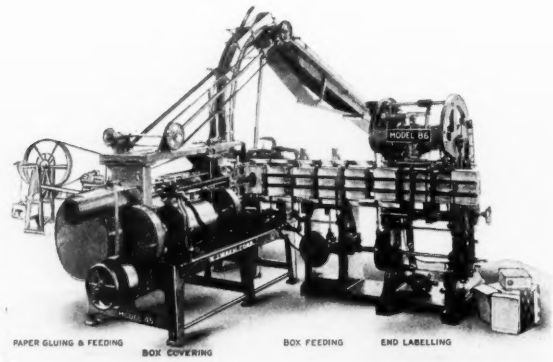
CARTON COVERING MACHINES

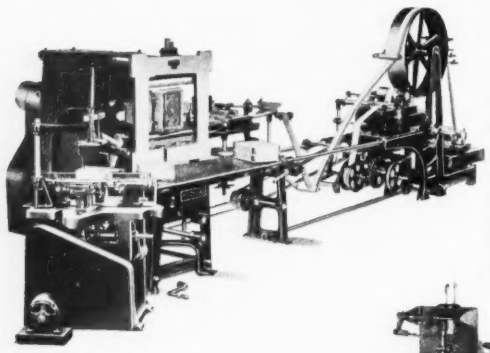
(Automatic and Semi-automatic)

AUTOMATIC BOX COVERING MACHINE

Model 45-86

For covering boxes by stripping, — for reinforcing large set-up boxes, and the application of end labels as well, on shoe, bulk-candy, shirt, slipper and similar boxes.





MECHANICAL STRIPPER

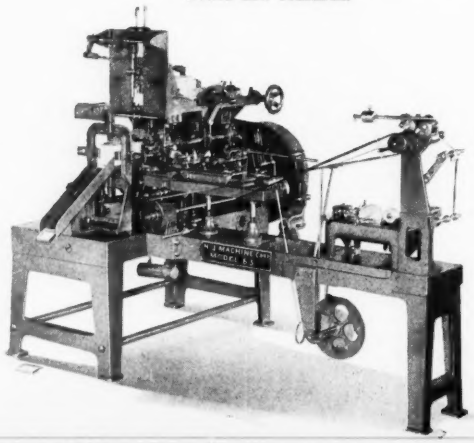
Model 40-80

Attended by an unskilled worker, this unit covers and strips boxes, either bottoms or tops. Just as efficient for short runs as long ones because of minimum number of necessary adjustments for size. Wide range, high speed and perfect boxes are features.

NEW JERSEY AUTO BANDER

Model 63

For staying boxes. The advantages of "Stay-by-Strip" boxes are instantly apparent. Bulky corners, unsightly sides, are eliminated, and a higher class, stronger, square cornered box is produced.



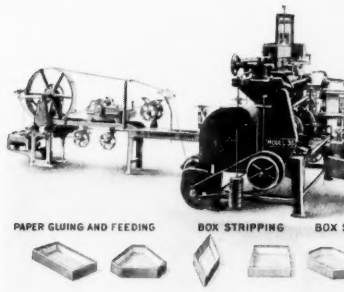
FULLY AUTOMATIC

AUTOMATIC BOXMAKER

Model 33-83

With part time of one attendant, this unit automatically produces complete bottoms or tops of boxes by the stripping method. Feeds from a hopper supplied with flat, cornered and scored blanks. Adjustable for a range of smaller size boxes.





AUTOMATIC BOXMAKER

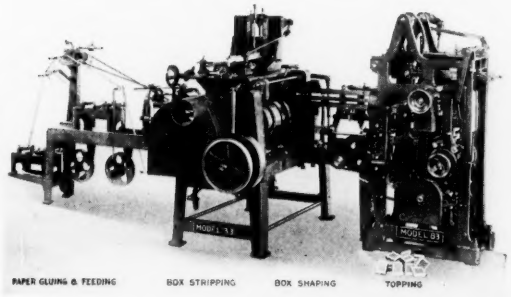
Model 41-85

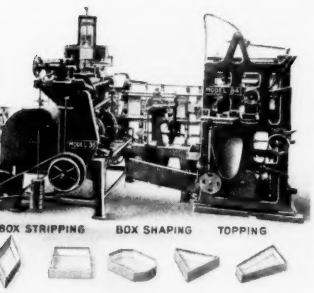
The same type of operating unit as Model 33-83 (above), but for large size boxes, such as shoe box lids, hosiery boxes, large pencil boxes, clock boxes, etc.



UTOMATIC BOXMAKING MACHINES

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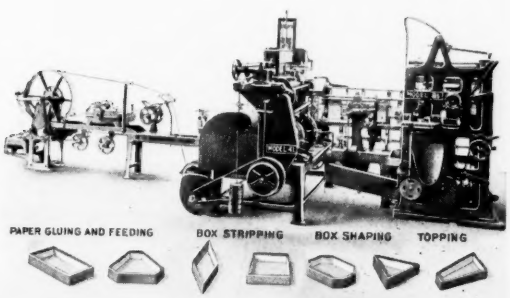




AUTOMATIC
BOXMAKER
Model 35-84

The same type of operating unit as Model 33-83 (above), but for larger size boxes, such as small shoe, candy, pencil, cigar, ice-cream boxes, etc.

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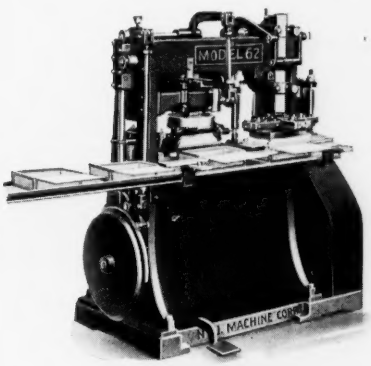


LINERS AND LABELERS
for cigar and other wooden boxes.

TAG GLUER
Model 82

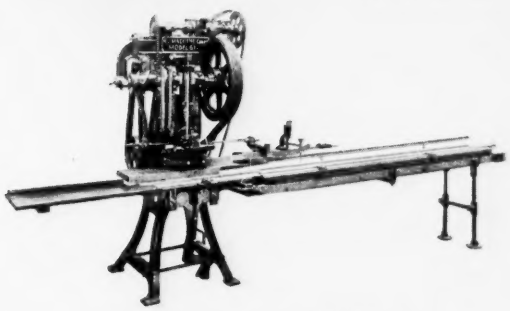
A useful unit for feeding and tip-gumming tags or inserts for cigar boxes, magazine inserts, samples, and a variety of tags or stickers. Foot-operated, inexpensive and practical.





BOX LINING MACHINE
Model 62

Automatic equipment for inserting a one piece, corner-cut liner in a box. For cigar-box lining, and fancy paper linings in paper boxes, etc.

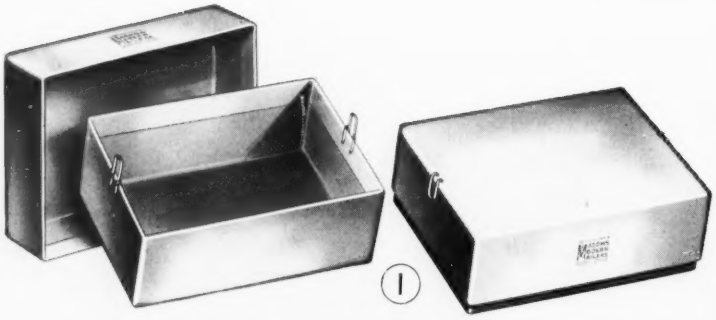


INSIDE LABEL PRESS, *Model 61*

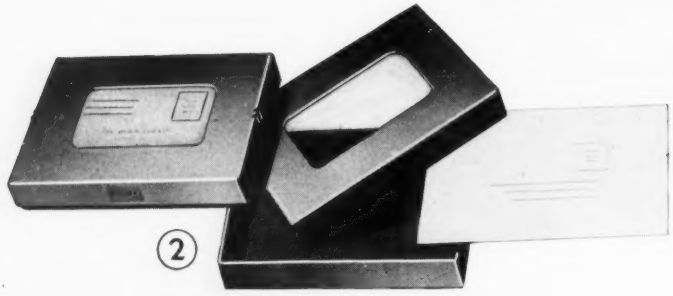
Fully automatic unit for pressing down labels. Overcomes manual rubbing down to insure blister-free work. Designed especially for labels on inside of cigar-box lids, and heavy-paper labels which tend to curl. Fast,—an economy unit, easily changed for various sizes.

XUM

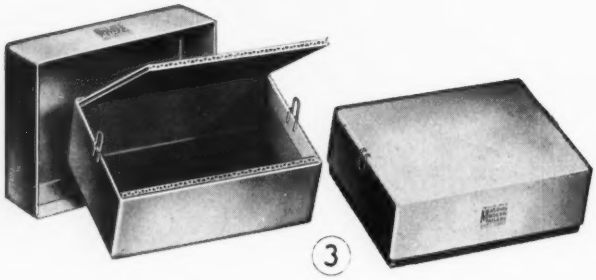
MASON MODERN MAILERS . . . .



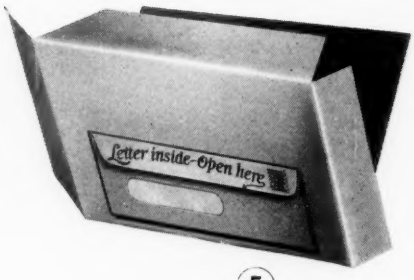
1



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3



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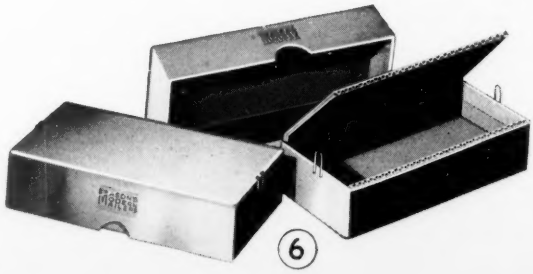
1.—Parcel Post Box for all unsealed mail.

2.—Returnable Box for memorandum or returnable shipments.

3.—No Break Box with inner corrugated lining for fragile goods.

5.—Rigid Mailer with or without letter compartment for articles that must be shipped flat.

6.—No Break Optical Box for optical shipments.



6

The United States Mail will carry within the limits of size and weight, as prescribed by Postal Regulations; tainers is necessary to cover the classes of mail.

For forty-two years, The Mason the manufacture of mailing con and exclusive. During that time, junction with the Post Office De tion and support.

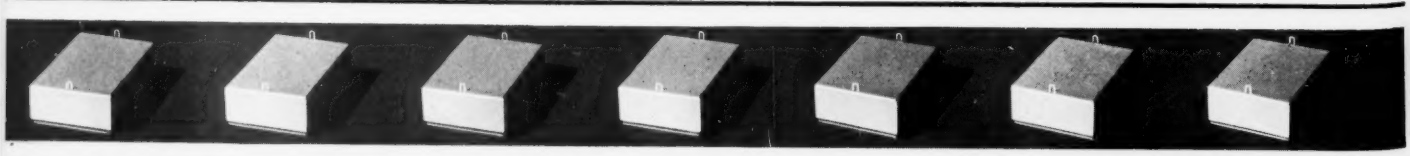
Pictured on these pages are the your convenience. Our greatest designing boxes to meet individual it can be mailed, we can provide offer a complete sampling service addressing and mailing. Samples mendations offered without incur catalog will be sent upon request.

THE MASON

ATTLEBORO

1123 Broadway, New York City

The Cover of This Book Was Made



. . . . The Standard for Postal Shipments

most products that can be shipped provided they are properly packed therefore, a complete line of con- range of individual needs and

Box Company has specialized in tainers that are both distinctive this concern has worked in con- partment and with its full coopera-

various stock items carried for service, however, often lies in needs. Whatever the product, if a Mason Mailer for it. We, also, which includes boxes, packing, will be gladly supplied and recom- ring any obligation, or our latest

BOX COMPANY

FALLS, MASS.

69 Sprague St., Providence, R. I.

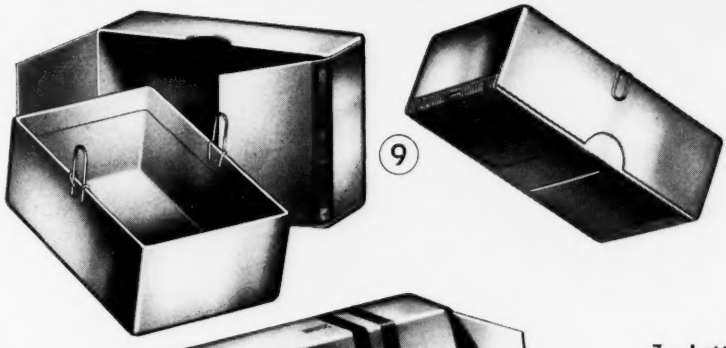
by Our Fine Arts Department



7



8



9



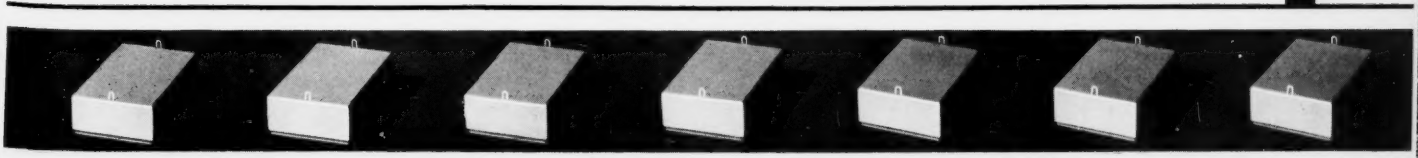
10

7.—Letter Box, a two compartment container which allows a first class letter and second, third or fourth class matter to be mailed together.

8.—Screw Cap Container for mailing liquids. An improved type.

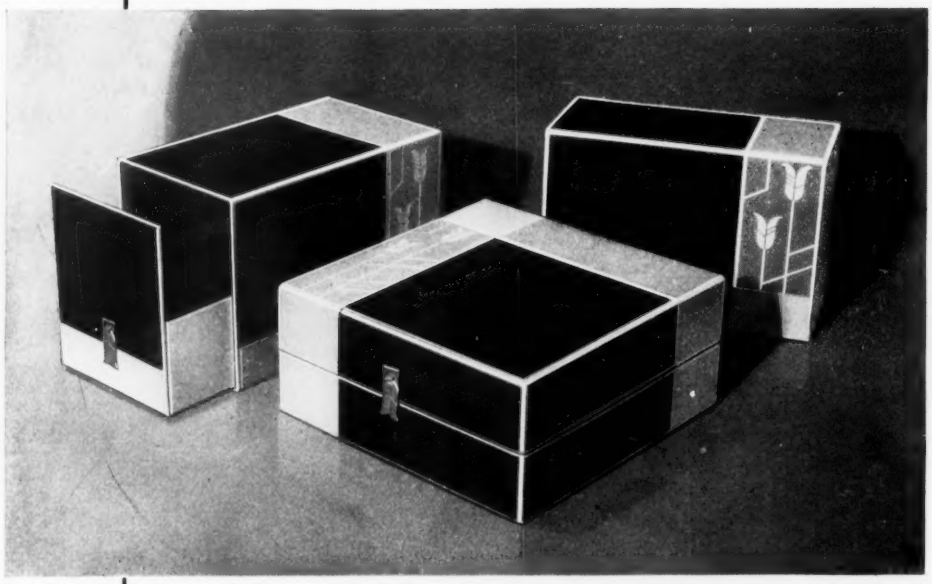
9.—Sealing Flap Box made in several styles for all classes of sealed mail.

10.—Air Mail Box, an up-to-the-minute container.



XUM

C E L L U S U E D E



Toastmaster and Waffle-Master Gift Boxes, of Mosinee Cellusuede. Produced for Waters Genter Co., Minneapolis, by Quality Park Box Co., St. Paul.

THE LURE OF LEATHER AT THE PRICE OF PAPER

SWING your merchandise into the penetrating spotlight of admiration with MOSINEE CELLUSUEDE for an instantaneous impression of quality and character! A luxurious, leather-like covering that lends itself to the very motif of modern package design! Its rich, velvety, suede finish, 17 beautiful colors, and low cost provides great latitude in the development of striking packages! MOSINEE CELLUSUEDE is a better "suede" with a flawless finish that prints and embosses beautifully. Easily handled and applied and especially adaptable to odd shapes and boxes of unusual nature.

MOSINEE CELLUSUEDE is a cloak of refinement. Consider it in designing or re-designing your package. Artists, Designers, Box Makers and Manufacturers of packaged merchandise will receive sample sheets for creative work upon request.

M O S I N E E

Cellusuede

MANUFACTURED UNDER U. S. PATENT No. 1883535

MOSINEE PAPER MILLS CO., MOSINEE, WIS.

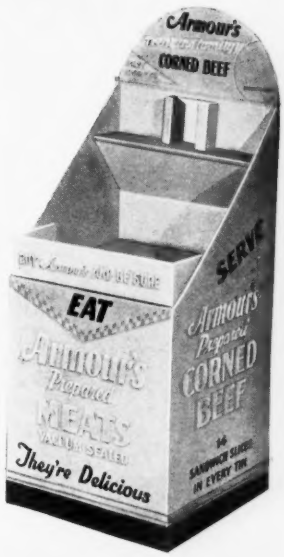
XUM



MOVE YOUR MERCHANDISE *with ORPCO DISPLAY STANDS*

Here is a new means of bringing merchandise off the shelf into a prominent display position. Sturdy and attractive, ORPCO DISPLAY STANDS provide a background for your package such as no shelf or counter can give it.

GIVE YOUR PACKAGE A CHANCE TO EXERCISE ALL THE EYE APPEAL AND ATTRACTIVENESS THAT YOUR MONEY HAS PUT INTO IT.





Dealers like ORPCO DISPLAY STANDS because they convert floor space into shelf space. Available in many styles and colors at a surprisingly low cost, they will give you THE FINEST VALUE YOUR PROMOTION DOLLAR CAN BUY.

ORPCO Engineers are ready to design a stand to fit your product and submit it for your consideration without obligation on your part.

A few* ORPCO *users:

Borden Sales Company, Inc.
Great Atlantic & Pacific Tea Company
Gold Dust Corporation
Thos. J. Lipton, Inc.
Procter & Gamble Company
Standard Brands Inc.
Westinghouse Lamp Company

***The* OTTAWA RIVER PAPER CO.**

TOLEDO, OHIO

SALES OFFICES: 67 West 44th Street, New York, N. Y.
12 Birch Road, W. Hartford, Conn. • 72 W. Washington St., Chicago, Ill.

XUM

WHEN IT COMES TO CLOSURES . . . COME TO ANCHOR

For thirty years Anchor has been making fine closures for fine products . . . foods, drugs, cosmetics, specialties, and now spirits and wines. Today Anchor proudly offers the most complete line of scientifically designed closures available . . . nineteen totally different types including—

The famous Anchor Amerseal that comes off and goes back on with only an easy quarter turn;

The Anchor D Cap, the most perfect seal made;

The handsome line of Anchor Molded Caps;

The Anchor Amerseal Metal Box for polishes and salves;

The ingenious new Anchor Turret Tube with the cap that can't get lost;

And other closures for every packaging purpose.

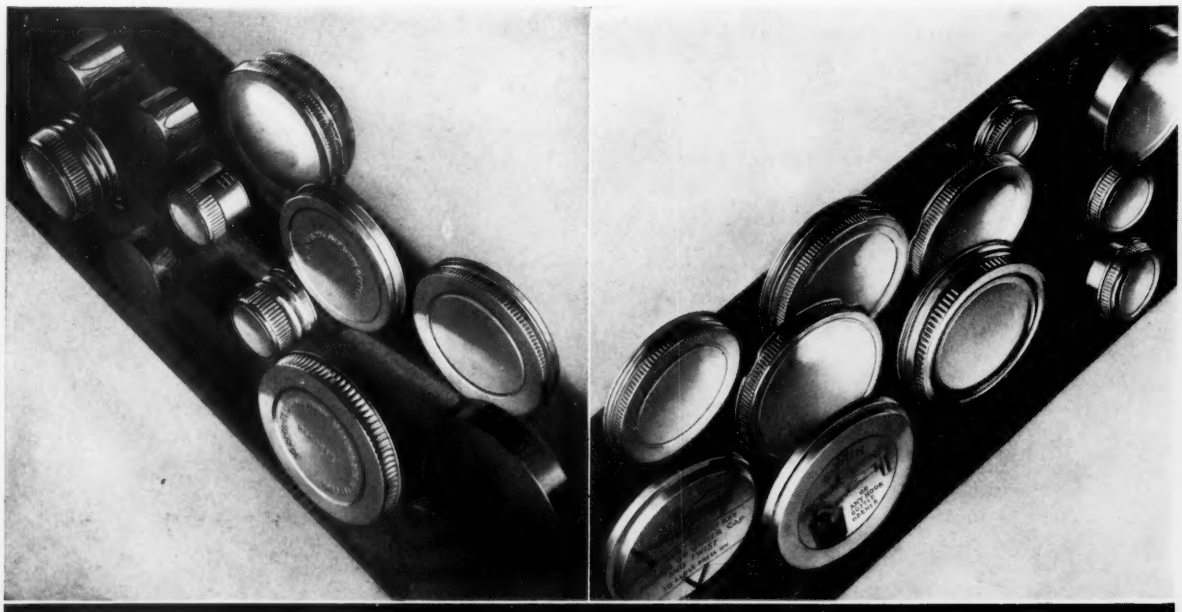
Moreover, the Anchor laboratories with their expert staff of practical experts in chemistry, biology and processing, as well as our Package Design Department have pioneered many important product and packaging improvements. Any or all of these services are at your disposal without obligation. Samples and complete information on closures suitable to any type of product or package you have in mind gladly supplied on request.

★ ★ ★

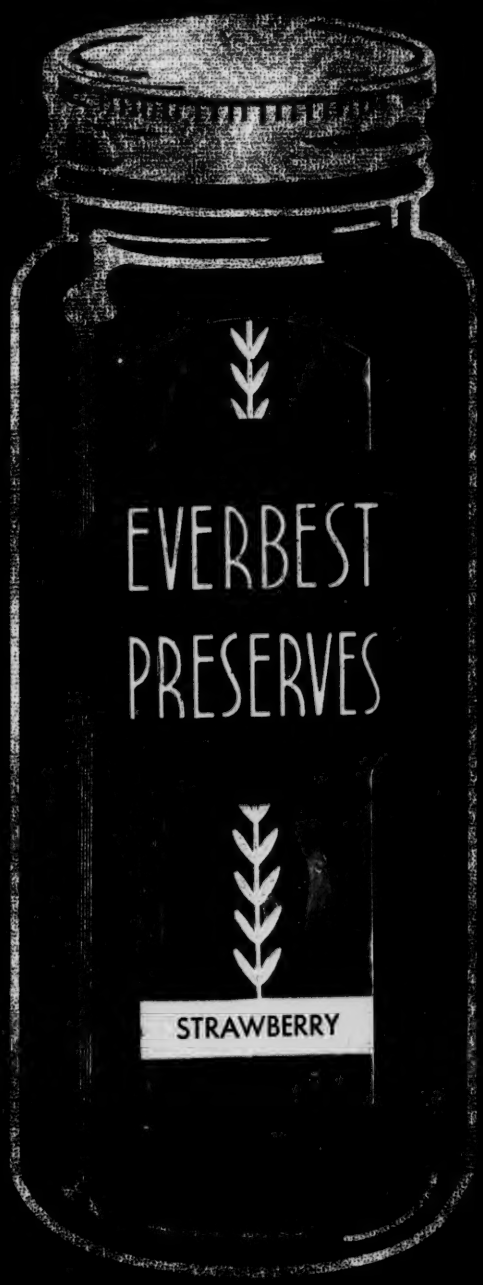
ANCHOR CAP & CLOSURE CORPORATION

LONG ISLAND CITY, N. Y. TORONTO, CANADA

Branch Offices: ATLANTA • BOSTON • CHICAGO • CLEVELAND • DETROIT HOUSTON • LOS ANGELES • LOUISVILLE • MONTREAL • NEW YORK • PHILADELPHIA • PITTSBURGH • ROCHESTER • SAN FRANCISCO • ST. LOUIS • TORONTO



ANCHOR IS CLOSURE HEADQUARTERS



Labels that Sell!

★
★
★

RICHARD M. KRAUSE
INCORPORATED
52 EAST NINETEENTH STREET
NEW YORK

XUM

IN TUNE WITH THE TIMES

Through the ages, time and man have wrought innumerable changes. To-day we are on the threshold of a new era embodying new ideas and methods.

●

Retrospecting two score years, when this business was established, we view with pardonable pride our pronounced progress. Exceptional service and zealous meticulosity have always been paramount in our daily routine. The unrelenting observance of our ideals and standards have placed us in the foremost ranks of our profession.

●

Our ultra-modern machinery and appurtenances permit us to pass on to our customers a saving in prices. We invite you to test our statements and we feel certain you will be more than pleased with the results.

●

In conclusion we are happy to state that we have wholeheartedly subscribed to the N.R.A. and shall rigidly obey all its precepts.





RICHARD M. KRAUSE

INCORPORATED

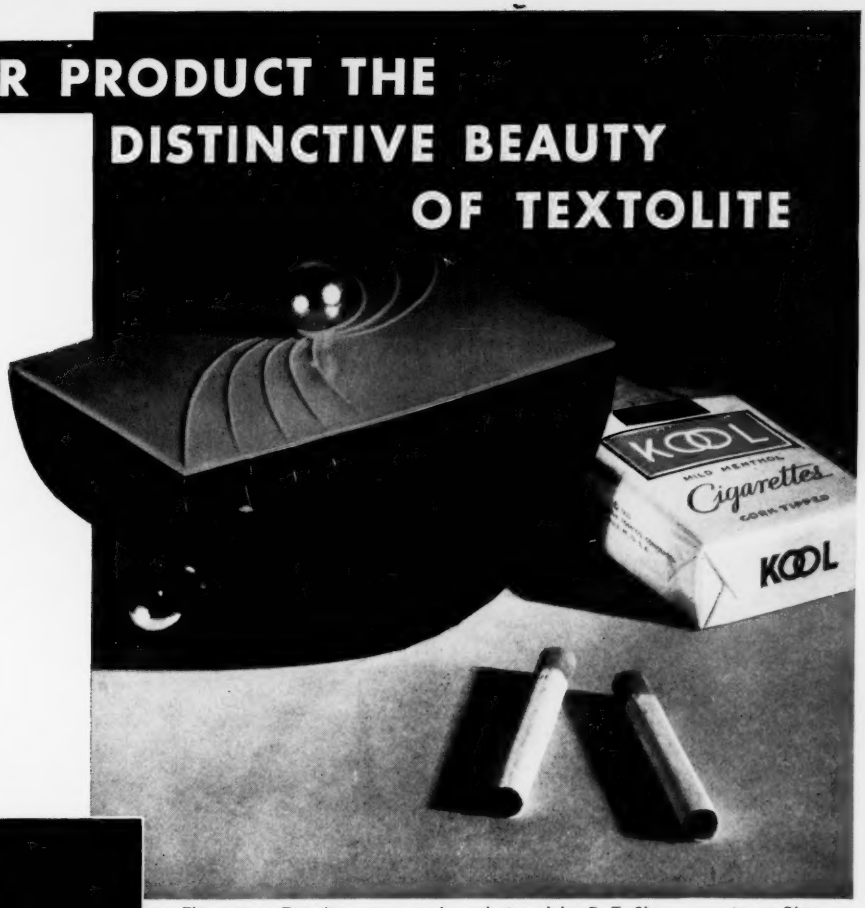
CREATORS OF LABELS OF DISTINCTION

52 EAST NINETEENTH STREET

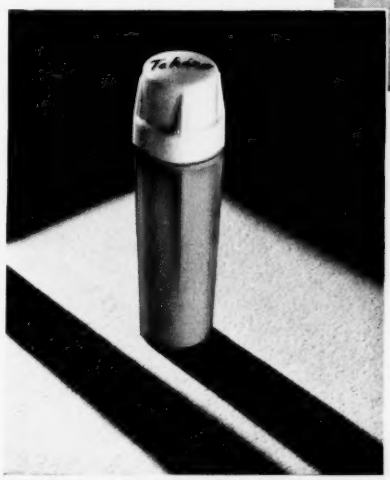
NEW YORK

XUM

GIVE YOUR PRODUCT THE DISTINCTIVE BEAUTY OF TEXTOLITE



This unique Textolite cigarette box, designed by E. T. Sloan, prominent Chicago designer, is molded by General Electric for the Brown & Williamson Tobacco Corp.



Bright green and ivory Textolite make this Tekéro cosmetic-stick container unusually attractive. These are just two of many pastel shades in which Textolite may be obtained.

IF YOU want to give your product that irresistible sales appeal of beauty which makes so many customers say, "I'll take this one," dress it up in rich, lustrous Textolite and watch it sell. . . . Textolite containers will give your products an individuality which lifts them far above competition. They have not only unusual beauty, but exceptional durability. Long after they've served your purpose, you'll find customers using them as handy receptacles. . . . For increased sales, why not let us study the possibilities of dressing up your product with Textolite? Address, General Electric, Plastics Dept., West Lynn, Mass.

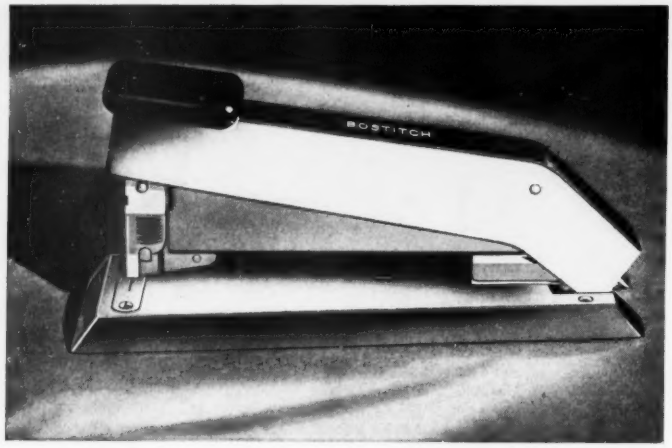
NRA MEMBER U.S. WE DO OUR PART

830-139

GENERAL ELECTRIC

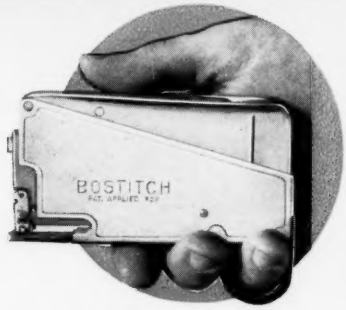
XUM

BOSTITCH



THE NEW BOSTITCH FASTENER

Modern . . . Streamline, powerful construction.
Easy . . . Finger-tip pressure works it.
Strong . . . Hard blows can't hurt it.
Speedy . . . Timed for quick action.
Smooth . . . Safety catch prevents clogging.
Simple . . . Loads quickly through front door.
2 in 1 . . . Base folds back to make a tacker.



BOSTITCH POCKET FASTENER

Entirely new and different. It fits the hand . . . the pocket . . . the desk drawer . . . the brief case. It will hang on a nail. Light and portable, it can follow the work anywhere. It has power and durability.



BOSTITCH HAMMER

A miracle tool that with one hand . . . one blow . . . drives home a staple even into hard wood or through soft metal with ease. Used on boxes or barrels . . . in shipping rooms . . . in factories . . . in window and outdoor display work.



Bostitch-fastening offers a speedy, simple, economical method of attaching, sealing or fastening a wide variety of merchandise.

In the illustration at left, for example, is shown a counter display card on which have been Bostitch-fastened a dozen small bottles of perfume. (Notice the wire staple around the neck of the bottle.)

On the opposite page are shown cosmetic items Bostitch-fastened to small individual cards; also bags sealed by Bostitch.

Bostitch-fastening on attractive display cards enables you to attractively present your product and at the same time tie your sales message directly to it—a sure-fire method of stimulating sales and turnover for your dealers.

BOSTITCH · STAPLERS · TACKERS · STITCHERS

XUM

THE MODERN METHOD OF FASTENING





THE sealing of transparent bags containing food products, candy, etc., is another popular use for Bostitch-fastening. As a speedy, economical and hygienic method of sealing and closing bags of all kinds, it is unequalled.

Bostitch staplers are paying dividends in larger sales and profits to users everywhere. Made in a complete range of models . . . from small 8 ounce pocket fasteners to large automatic power machines.

Send us samples of your products and we will gladly make recommendations without obligation, giving full particulars as to type of machine recommended, cost, etc.

Get in touch with our nearest office.





Bostitch Type F Staple Bottomer handles either corrugated or fibre containers up to 34 inches in depth with ease . . . the most popular low priced bottomer on the market . . . foot or motor-driven.



Bostitch foot and motor-driven machines are easy to operate. Both hands of operator are free to handle the material.

BOSTITCH SALES COMPANY, EAST GREENWICH, R. I.

XUM



The UNION DUPLEX COFFEE BAG — The above is printed in royal purple on gold paper. Winner of the first prize in the Bag and Envelope class of the Wolf Award, 1933.



The UNION TRANS-PAK BAG—Transparent cellulose bag for bath salts, printed in dark purple and light green. Delicate treatment permits extreme visibility.



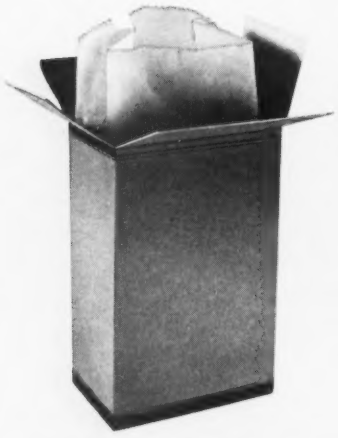
The UNION SIFT-PROOF SQUARE BAG—Approved by Bureau of Explosives & Consolidated Classification Committee for shipment of poisonous insecticides. This bag corresponds in color and design to other types of packages by same manufacturer.



KRAFT DUPLEX BAG WITH TIN-TIE CLOSURE—Dark brown and bright yellow printing harmonizes with the brown kraft and the cocoa.

PACKAGES

AND THEY ARE ALL PAPER BAGS



CARTON AND CAN LINERS—Illustrating one of many different kinds of can and carton liners. Liners are made to prevent grease and moisture penetration, sifting and to retain flavors.

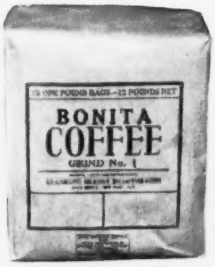




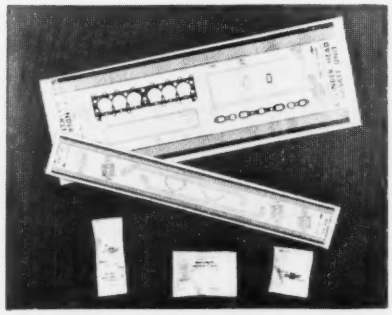
HEAVY DUTY SHIPPING UNITS—For all types of dry powders. Manufactured in single, duplex or triplex papers to meet shipping requirements. Offers unlimited possibilities for designing and printing.



The HANDY SIX BEER BAG—Contains corrugated board dividers and permits four bags of six bottles each to be packed in corrugated cartons for freight and express shipments.



The UNION SHIPPING CONTAINER BAG—For twelve and twenty-four 1 lb. bags of coffee. Accepted by Consolidated Classification Committee for freight and express shipment.

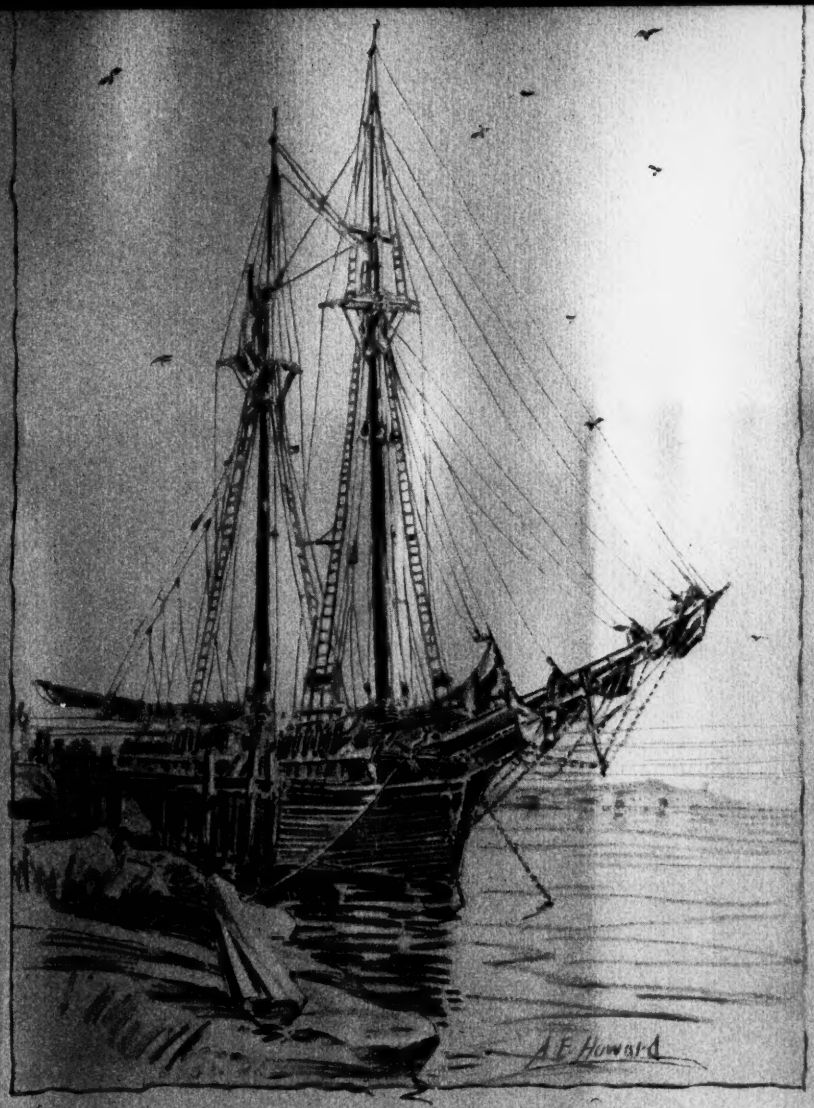


AUTOMOTIVE AND MACHINE PARTS BAGS—A group of bag specialties adaptable to almost any manufacturing plant for intra-departmental and service station or dealer delivery.

UNION BAG AND PAPER CORPORATION

GENERAL OFFICES **WOOLWORTH BUILDING** **NEW YORK CITY**

A Highlight Halftone of the . . . George McKowen . . Sketched by A. E. Howard at Booth Bay Harbor, Maine



McLaurin-Jones Co.

GUMMED AND COATED PRODUCTS
FOR THE PACKAGE MANUFACTURER

We present this page to illustrate the printing qualities of McLaurin-Jones Pyroxylin Coated Paper.

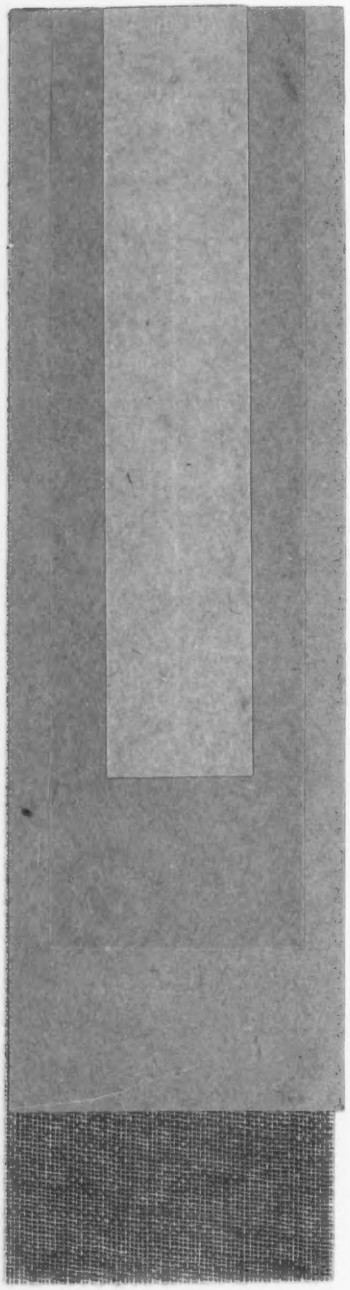
Ware Metal Papers: Are made in weights suitable for the box and package maker, label and seal manufacturer, and the printer of direct mail and specialty advertising.

McLAURIN-JONES CO. BROOKFIELD, MASSACHUSETTS

XUM

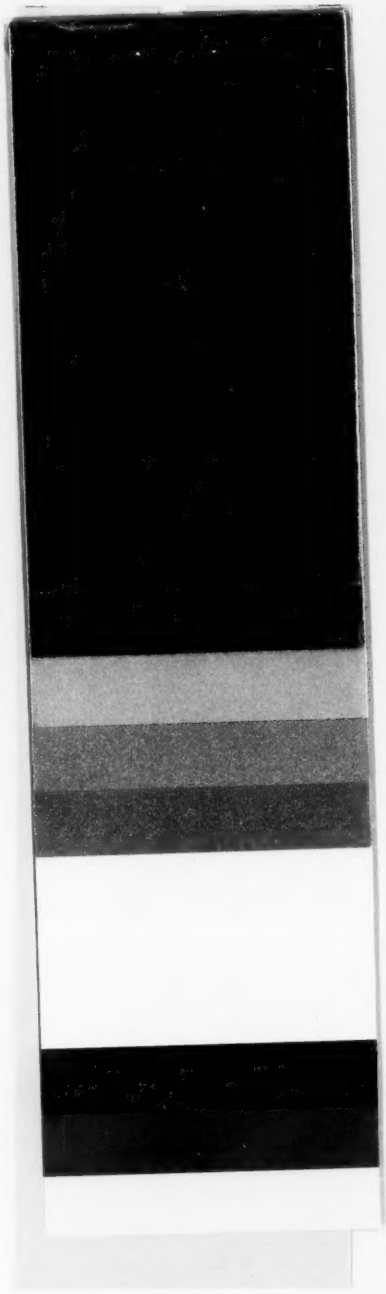
McLaurin-Jones Company . . .

Box Stay • Sealing Tape
Cloth Stay



GUMMED PAPER COATED

Gummed Papers for Labels and Seals



Comet Creased Stay

35 lb. Sunrise Tape

60 lb. Sunrise Tape

"G" Atlantic Cloth

Bright Silver Foil
Bright Gold Foil
Wareplatinum
Ware Luxor
Waregold
Plain Super
Clay Coated
Brush Finished
Glazed
Vivid
Pastel
Medium

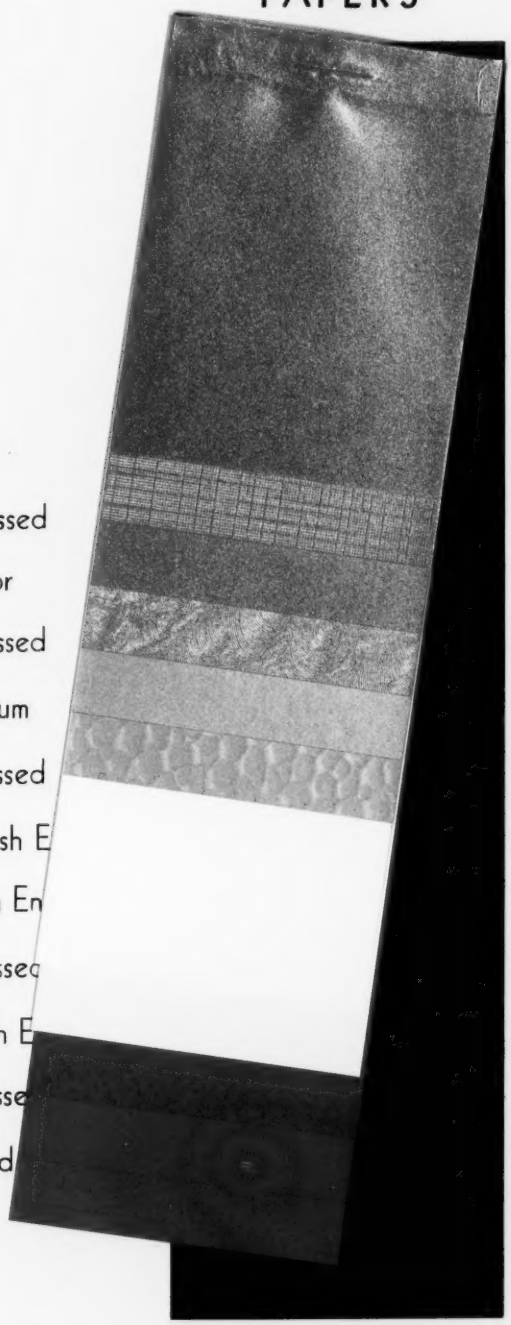
More than 100 YEARS *experience in the manufactur*

XUM

Headquarters for the Package Manufacturer

Box and Package Covering

PAPERS



Waregold

Embossed

Ware Luxor

Embossed

Wareplatinum

Embossed

Double Brush E

Single Brush En

Embossed

Tinted Brush E

Embosse

Dull Coated

Plated

Velour

The specimens shown on this page illustrate the principal divisions of the gummed and ungummed specialties manufactured by McLaurin-Jones Company for the packaging trade. Complete sample books and printed specimens will be sent upon request.

> More than seventy-five years ago, Peter MacLaurin at his mill in Scotland, made the first run of coated paper on his coating machine. Previously, coated paper had all been made by hand. Mr. MacLaurin was surprised at the quality of his new product compared with the old, but he was more surprised at the tremendous quantity he had produced . . . five reams in one day.

McLaurin-Jones quality is maintained with greatest care and accuracy today, regardless of whether business requires large quantities or small.

of COATED *and* GUMMED SPECIALTIES *qualifies us to serve you*

XUM

Style and Beauty

CREATE SALES

★

1934 promises to be a swiftly moving panorama of many changes in the business picture. In the arena of business, competition of "ideas" in *Style* and *Beauty* will be particularly keen.

★ Under the Code . . . business will resort to competition of ideas and service "to create and to win" business.

★ In the package field . . . those farsighted and wide-awake men who are first with new thoughts and ideas in the distinctive and attractive packaging of quality merchandise . . . will lead the field.

★ With a wide range of Box and Package Covering Papers together with Gummed Papers for Labels, Seals and Tape, Stay and Cloth Stay Products . . . we can give the alert Package Manufacturer products and specialties that will enable him to stay "out in front" in 1934.

★ Our experience of more than 100 years in this field can be of great value to you now. Consult with us on your next packaging problem involving the products that we make.

★

McLaurin-Jones Company

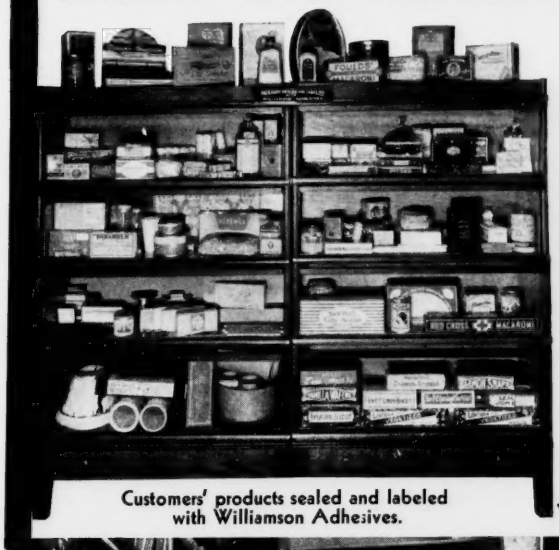
BROOKFIELD, MASSACHUSETTS

New York Office: 150 Nassau Street Chicago Office: 711 West Lake Street

This is a SAMPLE OF WARE LUXOR GOLD COVER HEAVY 20 x 26

XUM

WHERE WILLIAMSON GLUES ARE MADE



Customers' products sealed and labeled with Williamson Adhesives.





Barrel racks of stock glues ready for shipment—the reason why "orders go out the same day."

Shipments made in 50-gallon barrels, and in 5-gallon or 1-gallon air-tight pressed steel drums —prompt service on a gallon or a carload.

Tell us the requirements of your adhesive operation and we will send you a sample of the proper glue for your purpose.



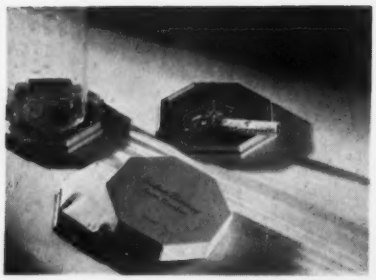
We do not believe there is any substitute for quality

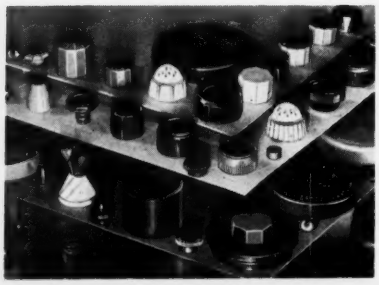
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Durez
Molding Compound

for jars, for trays,









WHAT DUREZ IS:

Durez molding compound is a synthetic phenolic resinoid product, molded under tremendous heat and pressure into the shape of the desired product. The manufacturers, General Plastics, Inc., do not perform the actual molding operations, but supply the raw material in powder form to custom molders and others equipped to make it into the finished product.

DUREZ CLOSURES:

Durez closures, or caps, are strong, tough and hard, yet light in weight. They are not affected by acids, alkalies or other destructive agents, making cork inserts unnecessary. They never rust or corrode or discolor the contents. They will not leak, because the threads are molded, not cut. They screw down tightly, without binding. Extreme accuracy in threading and design is assured, whether you make ten or a million closures.

DUREZ JARS:

Very recently, Durez was able to announce the perfection of a new non-hygroscopic compound which made possible the manufacture of the first molded jars. Water-proof, oil-proof, acid and alkali resisting, these jars are unusually tough. The most modern designs, in a variety of colors, are possible. Special dies are made in your own design, and large runs are most practical. Durez jars are light in weight, saving shipping costs. It is almost impossible to chip or crack them.

DUREZ BOXES:

Molded Durez boxes, especially with an "after-use," have been widely used to stimulate sales. Belt boxes which become cigarette humidors, watch boxes which are also display stands, face powder boxes, razor containers for travel, ensemble boxes, manicure boxes, playing card boxes—boxes for almost every product imaginable. These, too, are made in your special design only. They are permanently lustrous, cannot crush, dent or bend out of shape.

DUREZ DISPLAYS:

Molded Durez counter-display stands and ensemble trays are rapidly gaining favor. They have been very successfully used for displaying drug products, perfumes, cosmetics, and manicure sets, and manufacturers of candies, gum and other small packaged goods find them economical and sales-stimulating. On large runs they are particularly practical. They never get shabby or dog-eared, are strong and very light

closures, re-use boxes, displays, compacts, etc.

in weight, can be made in any shape, even the shape of the product, and always look brand new. Names and trade-marks can be molded right into their lustrous surface.

MISCELLANEOUS:

Scores of other packaging items can be made better and more economically with Durez, the Modern Plastic Compound. Durez lipsticks never dent, tarnish, scratch or lose their lustre. Durez paste-rouge containers are light, easy to open, permanently beautiful. Durez compacts are colorful, pleasant to handle, scratch-proof. Whatever your packaging problems, investigate Durez.

SOME FAMOUS DUREZ USERS:

The best testimonial for Durez is the standing of the houses which use it. Squibb, Auto-Strop Razor, Johnson & Johnson, Pinaud, Palmolive, Parke-Davis, Barbasol, Fitch, Astringosol, Zonite, Lambert Pharmacal, Nelson-Baker, Hinds, Lehn & Fink, McKesson-Robbins, Colgate—these are but a few of the many nationally known users of Durez.

WHAT TO DO:

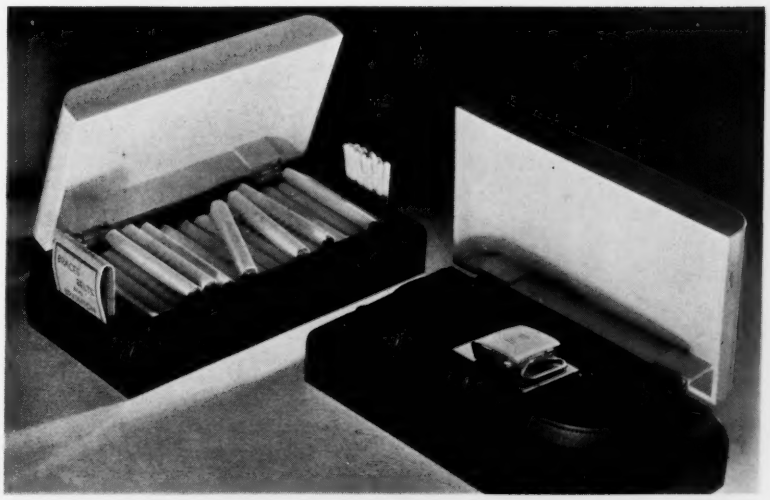
Whether you are interested in Durez for closures, or for any of the many other applications, we will be glad to lay the facts about its many advantages before you. First, we will send samples of other work similar to yours. Our staff of specialists, trained in thousands of applications, will show how Durez can be especially adapted to your needs. And, we will establish and help maintain relations between your House and the custom molder.

Simply drop a note, stating your problem, to General Plastics, Inc., at the home office in North Tonawanda, New York, or to any of the other offices listed below.

GENERAL PLASTICS, INCORPORATED

Walck Rd., North Tonawanda, N. Y.

Also:
NEW YORK: 250 Park Avenue
CHICAGO: 9 S. Clinton St.
LOS ANGELES SAN FRANCISCO









DUREZ Reg. U. S. Pat. Off.

THE MODERN PLASTIC COMPOUND

XUM

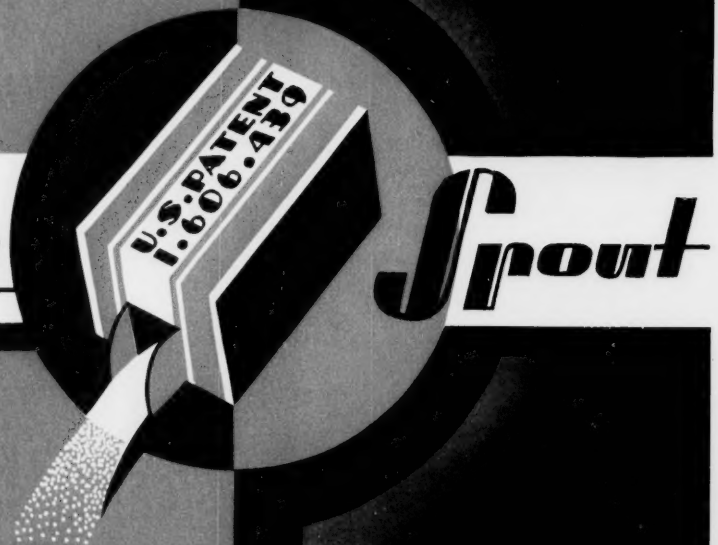
FORT ORANGE PAPER CO.

CASTLETON-ON-HUDSON-N.Y.
NEW YORK AND BOSTON

Leaders for years in the development and manufacture of quality folding paper cartons

FORT ORANGE PAPER CO. CASTLETON, N.Y.

The Pouring Spout



ONE OF OUR MANY SPECIAL FEATURES!

bajo

FOLDING · PAPER · CARTONS



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XUM

At Last!



All the advantages of transparency in a sturdy lightweight, unbreakable can

All the multiple advantages of can packing are now available, with the added advantage of product visibility. The George V. Clark Company is prepared to provide cellulose acetate transparent cans for manufacturers of dry packaged products, equipped with friction plug, slip cover or sifter tops.

They may be lithographed in one or more colors and thus eliminate the dangers of disfigured and torn labels, commonly encountered in the use of metal cans. They may be had in tints of various colors or as colorless, perfectly transparent containers.

The visible display they provide your product, their novel appearance, their re-use value and their striking color possibilities make them particularly attractive to the consumer and the merchant. They are ideal for cigars, cigarettes, cotton, bath salts, cosmetics, certain foods, candies and numberless other products. For full information as to styles, types and costs, write or wire the George V. Clark Company. If possible send a sample of your present container.

George V. Clark Co.

Long Island City, N. Y.

XUM


YARDSTICK FACTORS OF TUBE DESIGN
APPEARANCE
VISIBILITY
UTILITY
PALMOLIVE shave cream
POND
NO. 45
The day is past when the utilitarian factor was the Buyer's sole measurement of value.
Appearance and Visibility have very definitely taken their places beside Utility. Today, it is sales strategy to make your tube design attractive, easy to recognize and pick out.
Unconsciously the Buyer finds the product much more useful if it is pleasing to the eye. His hand reaches for the attractive tube.
If you are planning a new tube, let our Design Department help you put these three yardstick factors to work for you.
Collapsible Tubes
A. H. WIRZ, INC.
Established 1836
CHESTER, PENNSYLVANIA
Sprinkler Tops
NEW YORK 30 E. 42nd St.
LOS ANGELES 1231 E. Seventh St.
HAVANA, CUBA Roberto Ortiz Planos
CHICAGO 80 E. Jackson Blvd.



WILL YOUR PACKAGE *do a selling job?*

WILL YOUR package do a selling job for you at the point of purchase? Long after it has left your plant and is on the retailer's shelves—will it attract customers by its color, its shape, and its clean look of substantial value?

● And what about protective qualities—will your package keep its contents fresh and new, thus bringing repeat business as FRESHNESS always does.

● We stand ready to prove that we can make your package possess strong sales-building values. When we tackle a packaging assignment, we first of all consider the protection of your product. Because we are pioneers in the production of transparent cellulose, waxed papers of all grades, and other protective papers, our selection of a wrapping for your product is unprejudiced. Whatever wrapping is best suited, we are prepared to recommend.

● Next comes the design, and in that field we offer you the best of trained creative men, schooled by years of experience in serving national accounts—including some of the best known Chain Store names in the world.

● Following the selection of the proper material, and the creation of a design which will SELL your product, comes the production of the finished package. A modern industrial plant, with up-to-the-minute equipment, operated by veteran waxed paper and transparent cellulose men, insures rigid adherence to your specifications as to quality, color and delivery.

● Every day we are boosting sales by putting into wrappers the ability to SELL GOODS.

● Send us samples of your product—tell us your marketing problems—THEN WATCH RESULTS.

PACKAGE PAPER COMPANY

Holyoke, Massachusetts

MULTI-COLOR PRINTERS OF
TRANSPARENT CELLULOSE—WAXED PAPER—GLASSINE

NRA WE DO OUR PART

THIS COUPON IS FOR YOUR CONVENIENCE

DEPT. K. R.,
PACKAGE PAPER CO., Holyoke, Massachusetts.

Gentlemen: Without obligation send us further particulars of the service you have to offer in the packaging field. We are users of

☐ Printed Cellulose ☐ Waxed Papers ☐ Printed Glassine
(PLEASE CHECK)

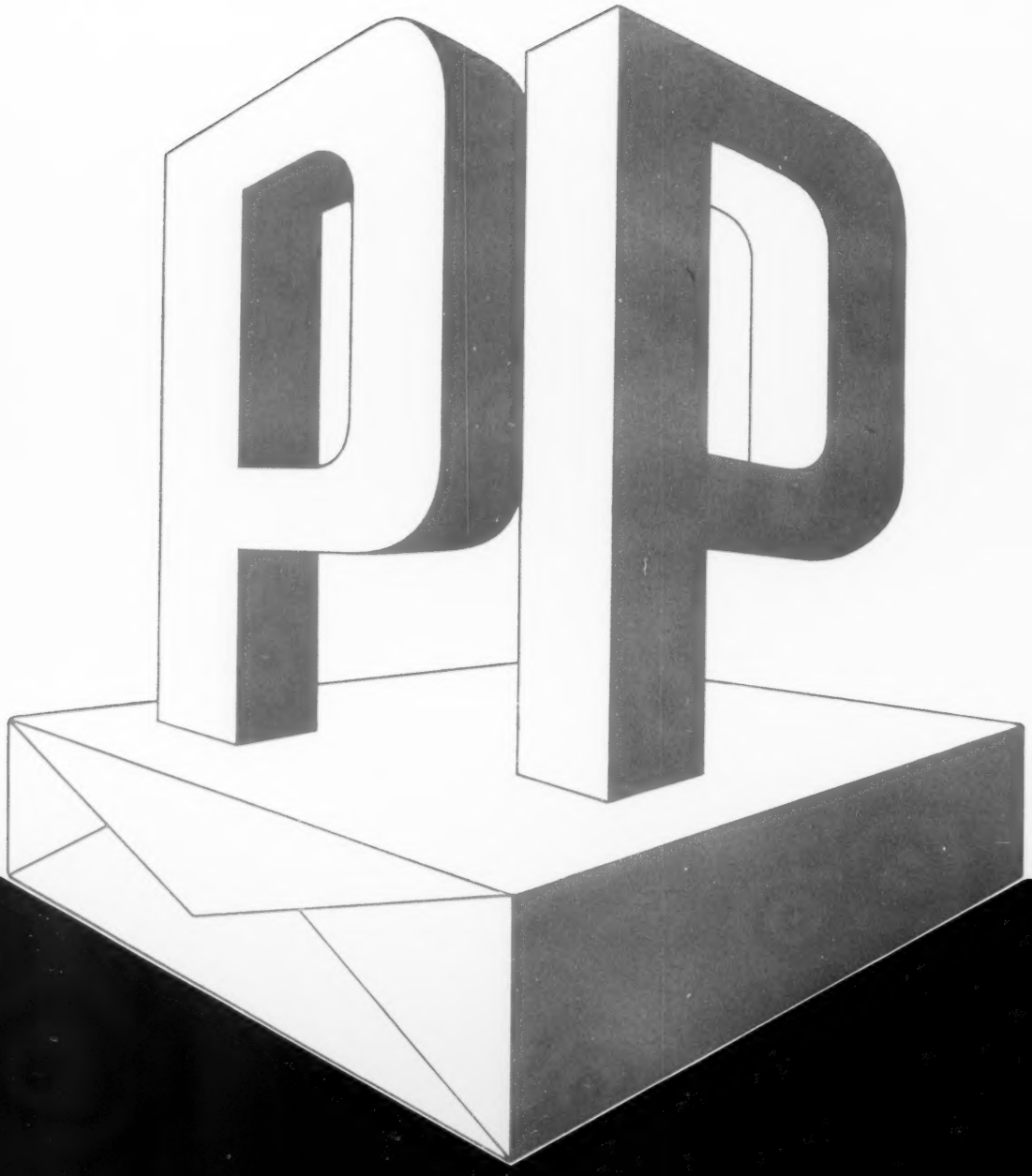
Firm _____

By _____

Address _____

City _____ *State* _____

XUM



WILL YOUR PACKAGE DO A SELLING JOB?

PACKAGE PAPER COMPANY

XUM

The Candid Camera Proves that DESIGN ISN'T ALL





for better execution of fine package design . . . work with MICHIGAN

●

Almost every package looks like a "winner" on the designing board. Its perfect lettering cries out "Buy Me." Its brilliant colors shout "See Me." Its sharp, clear, attractive outlines whisper appealingly "Display Me."

Yet, when this perfect child of the designer's imagination is produced — too often — all too often — the beauty, the brilliance and, with them, the sales appeal are gone.

We at the Michigan Lithographing Company pride ourselves on our ability as designers of packages and displays, but more than that, we pride ourselves on our ability to reproduce in mass production cartons, labels, wraps and displays which lose not one iota of the perfection of their original design. The packages we produce need not fear the candid eye of the camera — they can stand up and win on shelves and counters, in windows and in the home, for accuracy of reproduction is our watchword.

If you have an old package that needs new sales strength, if you plan a new package that must be a "winner" we invite you to learn the details of the Michigan method of package lithography. Write to

LABELS • PACKAGE WRAPPERS • DISPLAYS • BROADSIDES • COMPLETE PLANNING AND ART DEPARTMENT • FOLDERS • LABELS • PACKAGE WRAPPERS

LABELS • DISPLAYS • FOLDERS

MICHIGAN LITHOGRAPHING COMPANY

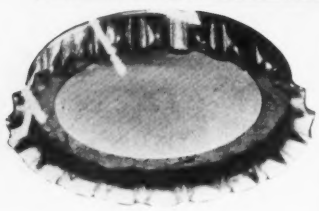
GRAND RAPIDS MICHIGAN

LABELS • DISPLAYS • FOLDERS

COMPLETE PLANNING AND ART DEPARTMENT • LABELS • PACKAGE WRAPPERS • DISPLAYS • BROADSIDES • FOLDERS • COMPLETE PLANNING AND ART DEPARTMENT

MUNDET





MUNDET closures provide the ideal combination of product protection and beauty. They combine the definite and long-proven advantages of cork with the beauty and convenience of molded closures. Their use requires no special glass finish and no special machinery to maintain speedy production. They are manufactured to fit most cork finished bottles. Their cost is no greater than ordinary molded closures. Consult with Mundet Cork Corporation on the possibility of using a stock design or developing a special closure for your product.



MUNDET CORK CORP., BROOKLYN, N. Y. « « « BRANCHES IN ALL PRINCIPAL CITIES

XUM

. . . THIS is the *Improved* Metal Edge Method of Packaging

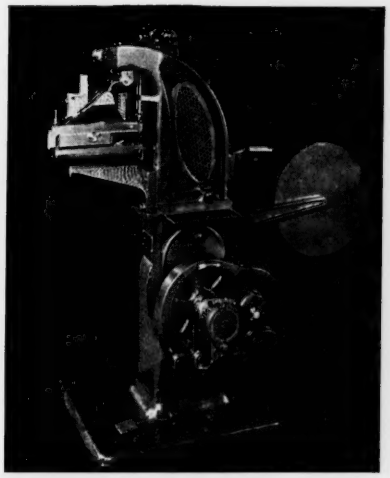


METAL EDGE is more than the strongest paper box known. It is a radically different packaging method. By it, manufacturers assemble their own boxes as needed, as a routine step in the production process. Box "flats", already shaped and printed, are supplied. The corners are securely joined with metal edging on a stayer like that shown below. An unskilled operator can quickly learn to assemble up to 5,000 boxes or more in an 8-hour day.

Many nationally known concerns profitably use the Metal Edge packaging method. A complete Portfolio, sent on request, explains how and why. Write for it.

THE IMPROVEMENTS

Originated in 1887, the Metal Edge method has been continuously developed to its present state of near-perfection. The past few years, for example, have seen the introduction of a new deep-pronged metal stay that grips the board firmly; an exclusive quality Super-Fibre box board; multi-color printing of "flats", attractive colors in both the box board and the stay; a package engineering service to study your requirements and make money-saving recommendations; a designing service to get the maximum sales-appeal into your boxes.



SEND FOR PACKAGING PORTFOLIO!

Modern, good-looking, interesting—it is a terse presentation of developments in packaging. If you use, or even contemplate the use of paper boxes you owe it to your business to read this brochure. Sent without cost or obligation, if requested on your business letterhead.



THE METAL EDGE STAYER

The Stayer for Metal Edge box assembly occupies only 2′ x 3′ floor space and is equipped with a ¾ h. p. motor. A change for size of box requires less than 30 seconds.

The Metal Stay is supplied in reels which are affixed in only a few moments.

Metal Edge box "flats" are supplied in bundles, separately wrapped and labelled.

Improved Metal Edge Packaging Advantages

(1) ELIMINATES DELAY in shipments, by making users independent of outside sources of supply for boxes.

(2) REDUCES INVENTORIES. Made-up boxes cost real money. The investment in Metal Edge "flats" is comparatively insignificant. Keep the difference in productive channels.

(3) SAVES 80% to 90% OF THE SPACE required for storage of an equal number of made-up boxes. As a rule, takes even less storage room than folding boxes.

(4) BOXES ALWAYS FRESH, with maximum sales appeal, because made up only as needed for use. There is no "spoilage" and waste.

(5) HAS PERMANENT ADVERTISING VALUE. Colorful, sturdy Metal Edge boxes have the quality atmosphere that makes friends.

(6) SIMPLE AS A B C. Any worker about the plant can assemble Metal Edge boxes, profitably using time that might otherwise be wasted.

(7) AND STRONGEST KNOWN among paper boxes is the Metal Edge—conclusively proved so by scientific test.

NATIONAL METAL EDGE BOX CO.

• • 330 North 12th Street, Philadelphia, Pa. • •

THE STRONGEST PAPER BOX KNOWN

XUM

WALKER 5-5152

CABLE ADDRESS "PADRICH"

PADGETT & RICHMAN

MANUFACTURERS REPRESENTATIVES
100 HUDSON ST. NEW YORK

IMPORTERS AND EXPORTERS OF PAPER CONVERTING MACHINERY & SUPPLIES

ANILINE MULTI-COLOR PRINTING MACHINES

With rewinding and cross cutting attachment, and in combination with bag making, cup making or other special machines

BAG MAKING MACHINES

For flat, satchel and block bottom bags

BOX MAKING MACHINERY

CELLOPHANE BAG MACHINES

CELLOPHANE WINDOW INSERTING MACHINES

COATING MACHINES

CORRUGATED BOX MACHINES

PAPER CUP MACHINES

EMBOSSING MACHINES

FOLDING BOX PRINTING AND PUNCHING MACHINES

FRUIT TISSUE WRAPPER PRINTING AND CUTTING MACHINES

(Handling the most difficult papers)

GUMMING MACHINES

In various sizes for reels and sheets with air-conditioned drying chamber and drying drum

GUMMED TAPE PRINTING MACHINES

LINING MACHINES

PAPER BOTTLE & CAP MAKING MACHINES

PAPER CONVERTING MACHINES FOR SPECIAL PURPOSES

PAPER PLATE MACHINERY

PARAFFINING MACHINES

PUNCHING MACHINES

SHEETING MACHINES

TUBE WINDING MACHINES

P&R ANILINE INKS FOR EVERY PACKAGING PAPER

The complete line of P. & R. ANILINE Inks is now ready for the printing of Cellophane, Vegetable Parchment, Glassine, Kraft, Tissue, Cellulose, Metallic, and all other special packaging papers.

These inks are furnished in a variety of brilliantly clear colors, with wonderful covering qualities, and dry *instantly*, permitting maximum speed of running without offsetting. Send for details, enclosing sample of material it is desired to print on.

XUM

ALUMINUM & LEAF COATED METAL PAPERS

A few specimens of our line

We can emboss our papers to many designs



44 S-60
45 S-75
46 S-60 lacquered
47 S-75 lacquered
45 S-75 K.D.
43 S-75 Pink
25 S-65
10 S-50

LARGEST STOCKS
UNEXCELLED QUALITY

KARL PAULI CORPORATION

454 BROOME STREET
NEW YORK CITY

• Economical
• Easy to Use
• Dependable

PAISLEY

COLD WATER SOLUBLE ADHESIVES

TIGHT WRAPPING *for* SMALL CARTON SEALING
STRIPPING TUBE WINDING
CASE SEALING LABELING
FOLDING BOX MANUFACTURE

Glues that are thoroughly soluble in cold water are the most economical for every purpose. No special equipment is required and they can be prepared in the exact quantity needed. Paisley Products, Inc., have developed a formula for cold water soluble glue powders that results in strong adhesives of uniform dependability. All Paisley Powders are made of the finest tapioca flour available. The line is complete, ranging from the lowest water taker using one part water to one part powder, to the product using four parts water to one of powder. We also manufacture liquid glues and pastes for all sealing purposes.

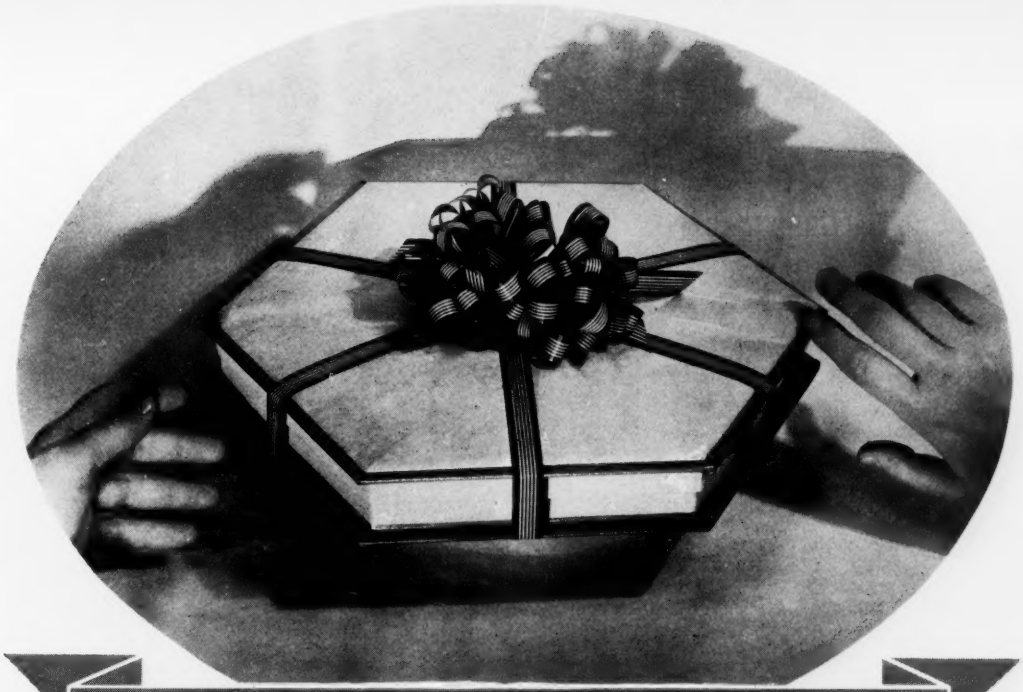
PAISLEY PRODUCTS, INC.

Manufacturers of ADHESIVES

GLUES - GUMS - PASTES - DEXTRINES - STARCHES - FLOURS

1770 CANALPORT AVE. CHICAGO, ILL.

XUM



EAGER HANDS REACH FOR ATTRACTIVELY-TIED PACKAGES

THERE is something irresistible about **RIBBON DE-LUXE** tied packages. Consumers invariably choose them in preference to others not so attractively tied.

Why not profit by this simple, inexpensive sales-building idea in marketing YOUR products?

Among the many hundreds of colorful designs and various widths in which **RIBBON DE-LUXE** is made, you will find several that are particularly appropriate for your packages.

Want to see some samples? Just tell us what you make and we will promptly forward generous sized samples of a number of suitable ribbons for you to experiment with on your packages.

Manufacturers of packaged candy, fruits, cakes and textiles or any other product where a ribbon is used should investigate the advantages of **RIBBON DE-LUXE**.



MILWAUKEE PRINTED STRING COMPANY

ESTABLISHED 1922

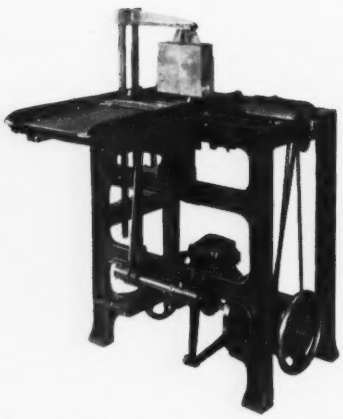
MILWAUKEE, WIS.

ALSO MAKERS OF DE LUXE QUALITY PRINTED STRING

PETERS MACHINERY CAN HELP YOU

whether your production is

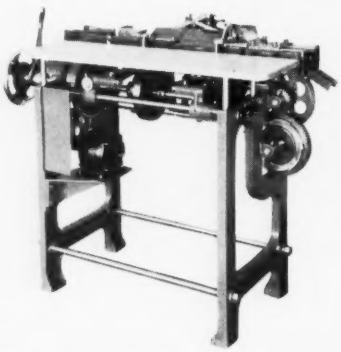
SMALL



If you set up cartons you'll be interested in the many economies that can be effected by the two machines here illustrated.

At one-third the cost of standard models, these efficient packaging machines pay for themselves in a remarkably short time.

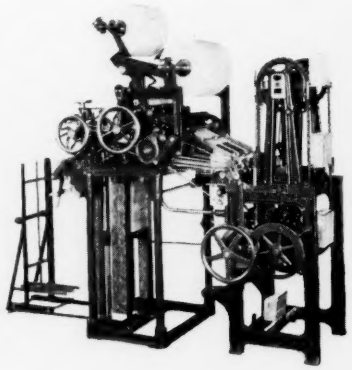
The Peters Junior Forming and Lining Machine forms and lines carton shells automatically at the rate of 2000 to 2500 per hour, and requires only one operator. Being readily adjusted, it handles a wide range of sizes.



The Peters Junior Folding and Closing Machine also has a production capacity of about 2000 to 2500 cartons per hour.

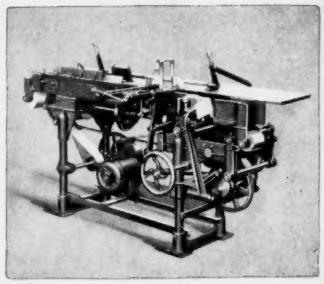
Get all the facts about these two machines and learn what they can do for you in speeding up production.

LARGE



Peters Standard Package Forming and Lining Machine has a speed of 60 packages per minute. This machine is equipped with an automatic Carton and Liner Feeding device. It takes the carton blank and a super-imposed sheet of paraffine, parchment or other protective paper, and simultaneously forms them into an open receptacle with interfolded linings. No paste, glue or other adhesive is required in the assembling of this receptacle. These machines have replaced from 5 to 7 hand operators at effected annual savings of more than $3500.

Peters Package Folding and Closing Machine (Type Y) takes the filled but unclosed package and automatically folds the upstanding portions of the lining and carton so that the goods are completely enveloped by the lining. It closes down the cover and inserts the front flap, making a rigid and firm package at 60 packages per minute. This machine is entirely automatic. The use of an operator or inspector is optional. If so desired, an advertising slip or other printed matter may be inserted in the package automatically. When no outside wrapper is desired, an automatic sealing attachment can close the edge of the package so that it cannot be opened without destroying such seal. Replaces from 5 to 7 hand operators. Annual savings $3500 and more.



Peters engineers will be glad to consult with you in the planning or re-designing of your packaging equipment. No obligation. Write to Peters Machinery Company, Chicago, Illinois.

PETERS MACHINERY COMPANY

GENERAL OFFICE AND FACTORY 4700 RAVENSWOOD AVE

CHICAGO.U.S.A

XUM

SHELLMAR "COLODENSE" PRINTING AND TINTING

SOLID OPAQUES AND TRANSPARENT TINTS IN ONE PRINTING OPERATION



The ability to combine these two printing features on a package offers a limitless number of beautiful color combinations that can be achieved without the added expense of colored cellulose. . . . The tinting can be confined to any desired area to bring out the important features of your product and give it that added lustre and attractiveness.

XUM


XUM

PACKAGE CREATIONS BY SHELLMAR



SHELLMAR PRODUCTS COMPANY

ADMINISTRATIVE OFFICES AND CELLUCOLOR PLANT: 3501-99 W. 48th PLACE, CHICAGO, ILL.

EASTERN DIVISIONAL OFFICES
1925 Empire State Bldg. New York, N. Y.

"COLLODENSE" PROCESS PLANT
West New York New Jersey

XUM



The Hallmark in Multi-Color Transparent Cellulose Packaging!

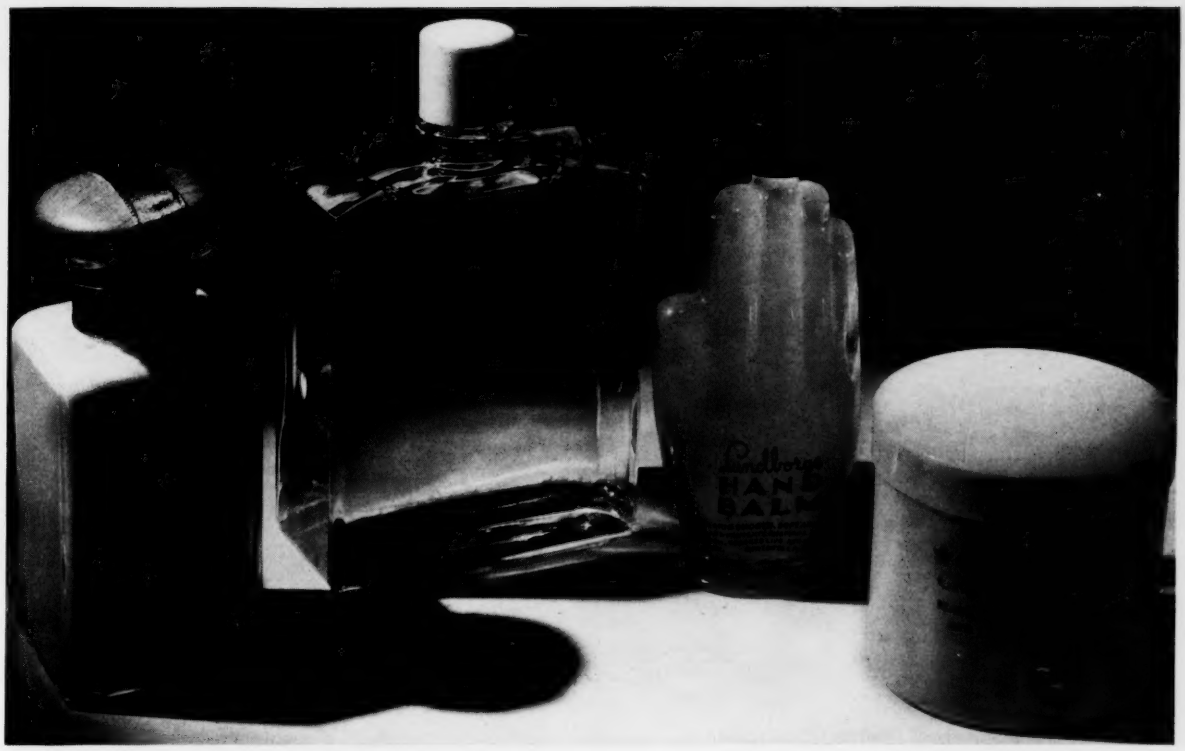
"STERLING" FOR SILVER • SHELLMAR FOR WRAPPERS

Sustained quality standards, special equipment, specialized experience, skilled artisans and craftsmen — all insure satisfaction to Shellmar customers.

Whether your problem concerns wrapping a single product or the creation of an entire "family" line — a simple printed identification or an intricate five color design — there is no deviation from Shellmar standards of perfection.

Direct your next inquiry for multi-color cellulose packaging to our Development Department for PERSONALITY in your package.

XUM



NEW DISTINCTION IN LABELING

Now you can use labels that do not look like labels, and which will give new beauty and distinction to your container. In fact, the use of *Engradel Transparent Labels* gives ordinary stock containers the appearance of custom-made containers.

ENGRADEL
TRADE MARK
U. S. PATENT NO. 1803836

TRANSPARENT LABELS

When affixed to glass or other surfaces, these labels have the effect of engraving or raised printing done directly on the surface of the container.

The label film has a natural affinity for glass and stays put in any desired position.

Engradel Labels are particularly effective on transparent flint glass, opal glass, and molded plastic containers.

Suitable for containers for foods and beverages as well as for cosmetics.

Designs can be reproduced in any color. Write for samples and full information.

PALM, FECHTELER & CO.
15 EAST 26th STREET
NEW YORK

EAST LIVERPOOL, OHIO — CHICAGO, ILL.

ENGRADEL LABELS ARE
EASILY AND QUICKLY APPLIED
LEAVE NO STAIN
IMPERVIOUS TO GREASE, WATER, ALCOHOL
WASHABLE—PERMANENT
WHEN DESIGNING YOUR NEW PACKAGE CONSULT US

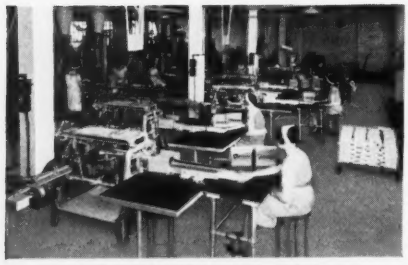
XUM



1. Machines which wrap cartons in printed wrappers, Cellophane, glassine, waxed paper, foil, printed transparent wrappers, etc.



2. Machines which wrap the product itself in printed paper wrappers, Cellophane, glassine, waxed paper, foil, printed transparent wrappers, etc.



KRAFT-PHOENIX CHEESE CORP.



PARIS MEDICINE CO. GROVE'S BROMO QUININE



AMERICAN TOBACCO CO. LUCKY STRIKE CIGARETTES

Our machines wrap an extremely wide variety of products in many different ways

OUR wide experience in building wrapping machinery for a great variety of products, gives us a decided advantage in solving individual packaging problems.

It is impossible to show here the large number of machines in our line and the many forms of wrapping which they produce. Briefly, however, they fall into the following classifications:

(1) Machines which wrap cartons in printed wrappers, Cellophane, glassine, waxed paper, foil, printed transparent wrappers, etc.

(2) Machines which wrap the product itself in any of the materials mentioned above—candy bars, yeast cakes, cigars, razor blades, cake, soap, chewing-gum, etc.

(3) Combination bag-making, weighing, filling and sealing machines for such products as coffee, tea, rice, sugar, etc.

(4) Bundling machines for enclosing cartons in bundles of dozen or half-dozen lots. Machine bundling is extensively used because it makes large savings over the cost of packing goods in cardboard boxes.

Electric-Eye Wrapping

We are constantly developing new forms of wrapping to meet modern conditions.

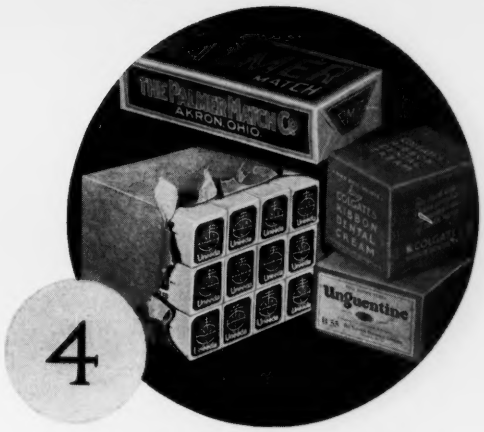
Electric-Eye Wrapping with printed Cellophane, Glassine, Waxed Paper. This is a most recent development. Heretofore it was impossible to wrap a product by machine in a printed transparent wrapper, *with the printing properly registered on the package.* In machine wrapping, Cellophane, glassine and waxed paper must be fed from a roll—not in sheets. Therefore it was necessary to devise a cutting and registering device which would cut the wrapper from the roll so that the printed design would come in exactly the right location on the package. We accomplished this by designing a machine with an Electric-Eye (photo-electric cell) which "watches" the printed design and actuates the mechanism that cuts the wrapper and places it around the goods.



XUM



3. Combination bag-making, weighing, filling and sealing machines for such products as coffee, tea, rice, sugar, etc.



4. Machines for enclosing packages in bundles of dozen or half-dozen lots. Machine bundling makes large savings over the cost of packing in boxes.

Since the printing is right on the transparent wrapper, it is unnecessary to use printed paper wrappers, printed bands, or printed cartons for identification, as is the case when a plain transparent wrapper is used.

Adjustable Wrapping Machines for Various Sized Cartons

These machines are designed for manufacturers who desire to wrap a number of different sized cartons on a single machine. Our F-9 Model, for example, will wrap any variety of sizes within the following limits:

4″ to 12″ long; $1\frac{3}{4}$″ to $4\frac{1}{4}$″ wide; $1\frac{3}{4}$″ to $3\frac{1}{4}$″ high.

It is built for either roll feed or sheet feed. Registers the printed design on the package, and also attaches end seals, if desired.

Hesser Combination Bag-Making, Weighing, Filling and Sealing Machines

are used extensively for coffee—also for packaging rice, barley, gelatin, sugar, etc.

The machine first forms the inner bag, taking the paper from a roll. The outer bag, made of a printed sheet, is then formed separately about the inner bag. Finally, the machine transfers the bag to its filling and closing mechanism, which completes the packaging operation. Bags made in this manner cost considerably less than ready-made bags bought knocked-down and ready for filling.



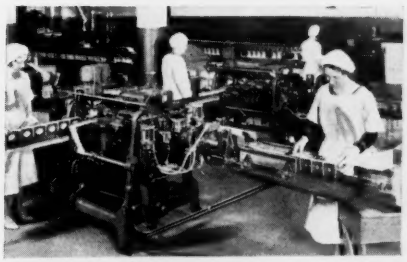
Cellophane Seal for Milk Bottles

A new machine, which we perfected after a year and a half of experimenting, places a sanitary Cellophane seal on milk bottles—as shown here. The seal protects the cap and pouring lip from contamination. Being completely transparent, it allows all the cream to be seen. And it is much more easily opened than former seals. Unlike paper seals, the Cellophane will not become soiled or marred by handling. It is the most economical form of protection for bottled milk.

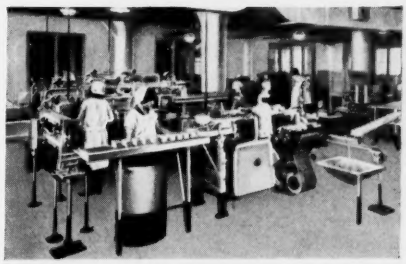
Over a Quarter of a Century's Experience at Your Service

The Package Machinery Company is a pioneer in the development of packaging machinery. Today, the great majority of package goods manufacturers use our machines. This established record of achievement is your surest guarantee of satisfactory service.

We will be glad to assist you in devising packaging methods for new products; in improving your present package; or in lowering your packaging costs. Get in touch with our nearest office.



JOSEPH TETLEY & CO. TEA



BRISTOL MYERS CO. IPANA & SALHEPATICA



AMERICAN CHICLE CO. CHEWING GUM

PACKAGE MACHINERY COMPANY
SPRINGFIELD, MASSACHUSETTS
New York Cleveland Chicago Los Angeles
London: Baker-Perkins, Ltd.



IMPOSI

THIS HONOR ROLL OF USERS OF PNEUMATIC EQUIPMENT*

Franklin Baker Company
Walter Baker Company
Calumet Baking Powder Company
Richard Hellman, Inc.
Igleheart Brothers
La France Manufacturing Company
Minute Tapioca Company
Postum Company
Sanka Coffee Company
Maxwell House Products Company
Diamond Crystal Salt Company
Washburn-Crosby Company
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Lever Brothers Company
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Kellogg Company
Morton Salt Company
McCormick & Company
National Biscuit Company
National Carbon Company
Nestle's Food Company
Oakite Products Company
Pacific Coast Borax Company
Pillsbury Flour Mills
Proctor & Gamble Company
Quaker Oats Company
Ralston Purina Company
Rumford Chemical Company
Salada Tea Company
W. F. Schrafft & Sons
E. R. Squibbs & Son
Swift & Company
United Drug Company
Van Camp Packing Company
G. Washington Coffee Company
Wheatena Company
J. B. Williams Company

*Due to limitations of space, this can be only a partial list representing a cross section of Pneumatic customers

XUM

NG AND SIGNIFICANT

A TRIBUTE to the integrity of a company and its products, that should prove significant to every prospective purchaser of packaging or bottling machinery, is this representative list of users of Pneumatic equipment. An endorsement unequalled by any other manufacturer of automatic packaging machinery and an unmistakable indication of the recognized superiority of Pneumatic equipment.

Variety of industries rivals quality of names in this list which embraces companies whose products are dry, liquid, and semi-liquid, and whose containers are bottles and jars as well as tins and packages. The list below gives the complete line of machines manufactured by the Pneumatic Scale Corporation for the packaging of dry products and the bottling of liquids and semi-liquids. Detailed information on any of these will be gladly sent on request.

PNEUMATIC MACHINES

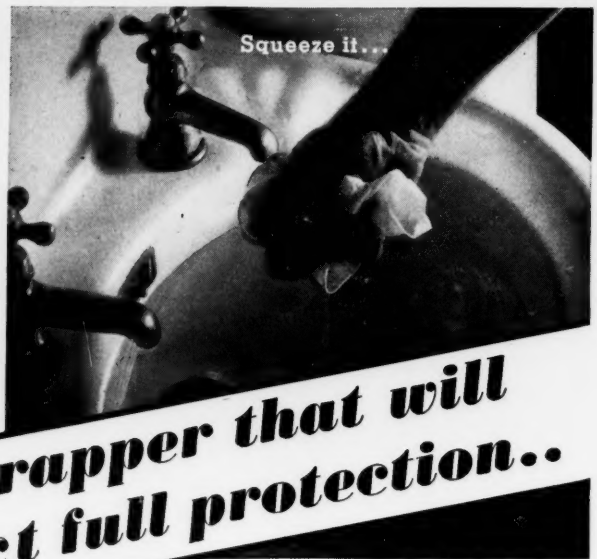
Carton Feeders—Bottom Sealers—Lining Machines—Weighing Machines (Net and Gross)—Top Sealers—Tight Wrapping Machines—Capping Machines—Labeling Machines—Vacuum Cleaning and Filling Machines (for liquids or semi-liquids)—Automatic Capping Machines—Automatic Cap Feeding Machines—Tea Ball Machines

Address: 77 Newport Avenue, Quincy, Mass. (Norfolk Downs Station)

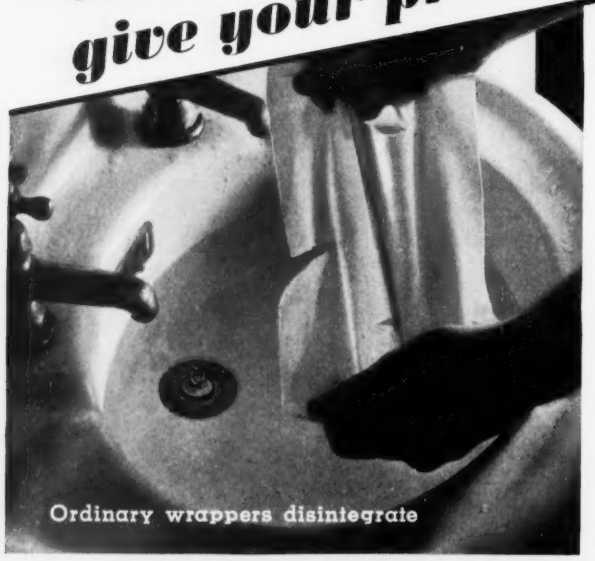
Branch Offices in New York, 117 Liberty Street; Chicago, 360 North Michigan Ave. San Francisco, 320 Market Street; Melbourne, Victoria; Sydney, N. S. W. and Trafalgar House, No. 12 Whitehall, London, England

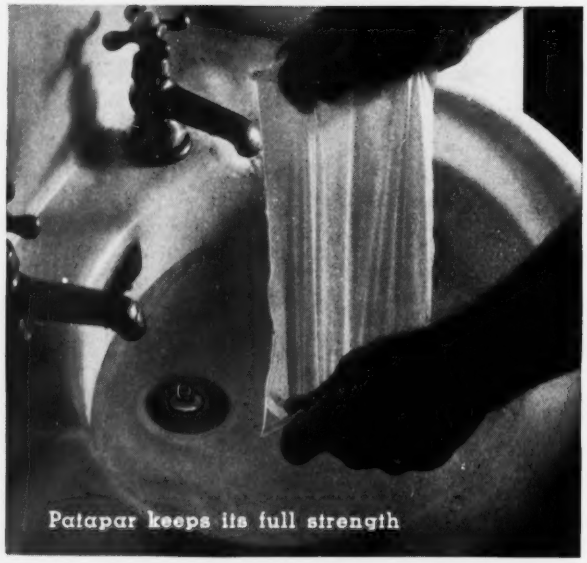
PNEUMATIC SCALE CORP. LTD.





How to pick a wrapper that will give your product full protection..





A WRAPPER may be grease-proof, odorless, and tasteless. But will it stand this final test? Is it insoluble? Will it resist all contacts with moisture or grease? Try it and see. Take any wrapper. Thoroughly douse it in water. Squeeze it. Then stretch it out and see what happens.

If it's an ordinary sheet it will disintegrate and fall apart, and be forever useless.

Perform this same test with Patapar and see the difference! It comes out whole and strong with not a tear. Soaking will not weaken it in the slightest.

That's why Patapar is recommended for wrapping moist foods—because it gives the utmost protection from moisture as well as grease. *Paterson Parchment Paper Company, Bristol, Pennsylvania.*

Ask about having this national symbol of wrapper protection included on your printed wrappers at no extra cost.



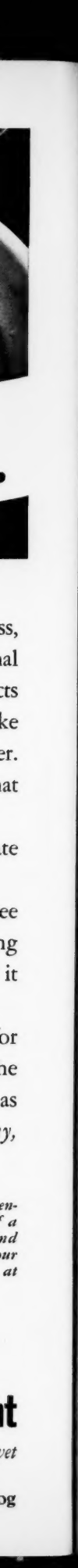
Pacific coast customers enjoy the advantages of a complete printing and delivery service from our San Francisco plant at 74 Rincon Street.

Patapar

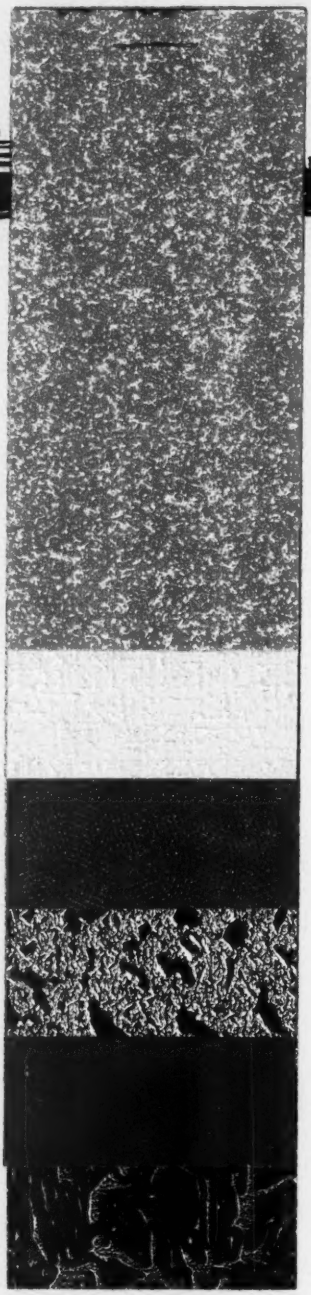
The popular name for

Paterson Vegetable Parchment

Insoluble and grease-proof...Keeps its full strength when wet



Marvellum's New Silverwave Creation



Write

for complete Sample Books of these various lines.

STARDUST
No. 7671
Green

SILVERTEX
No. 83
Pink

RAYON
No. 8022
Turquoise

SILRAY
No. 70
Nugget

EMBASSY
No. 8232
Scarlet

FLINT
No. 7912M
Black

¶ A paper that is beautiful in its simplicity; distinctive in its appearance. The silver highlights give this new design an interesting appearance that catches and holds the attention. Eleven rich tints give you a large, diversified range of color to choose from. SILVERWAVE, because it is so rich in sales appeal, will add to the sales value of your new package designs.

¶ SILVERWAVE is particularly suitable for utility boxes, small wearing apparel boxes, high grade candy boxes, playing card boxes, cosmetics, papeterie boxes, hosiery boxes, toilet articles, etc.

We're Sincere About This

¶ We want you to appreciate the beauty of Marvellum's distinctive papers. We'll be glad to send you samples of any line you request for experimental purposes. Please state color and number of pattern desired.

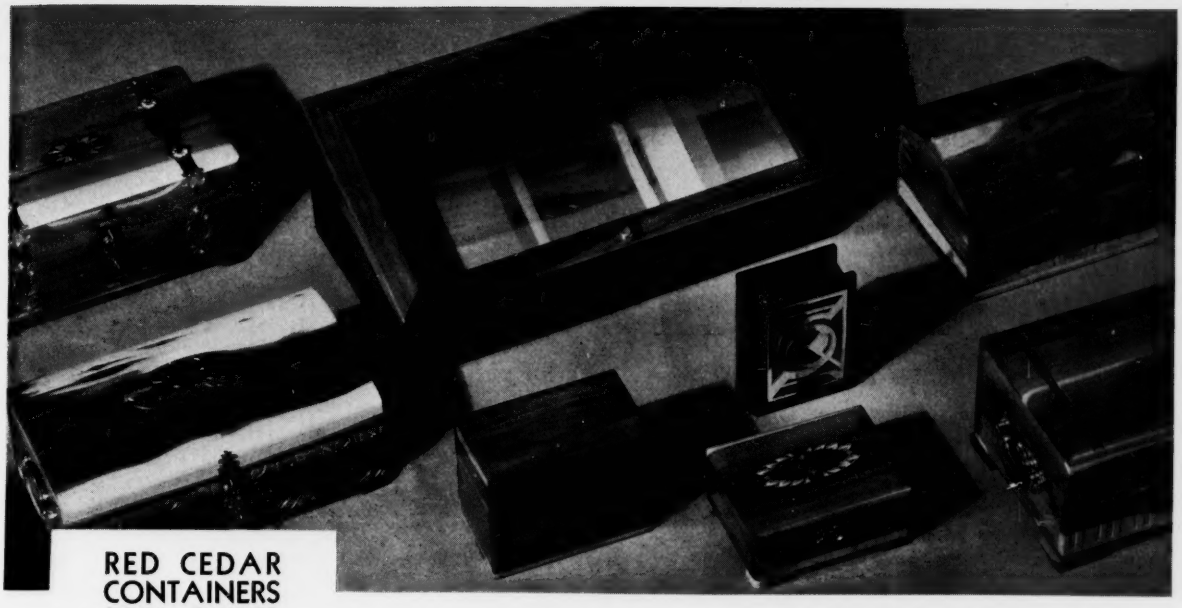
The
MARVELLUM COMPANY
Makers of Papers Distinctive
HOLYOKE, MASSACHUSETTS

DISTRIBUTORS

Bradner, Smith & Co., Chicago, Ill. Harry L. Goodman, Boston, Mass. A. Hartung & Co., Philadelphia, Pa. Nassau Paper Co., St. Paul, Minn. John Leslie Paper Co., Minneapolis, Minn. Matthias Paper Corp., Philadelphia, Pa. Harry M. Cranmer Co., Inc., Boston, Mass. Hughes & Hoffman, New York, N. Y. Holyoke Paper Corp., New York, N. Y. Blake, Moffitt & Towne, San Francisco and Los Angeles, Calif.

This insert is printed on SILVERWAVE No. 8120, Turquoise.

XUM



RED CEDAR CONTAINERS SELL THESE

CORRESPONDENCE CARDS
SURGICAL INSTRUMENTS
SCIENTIFIC APPARATUS
BOXES FOR DECORATING
DOLL WARDROBE CASES
PYROGRAPHY OUTFITS
WATER SOFTENERS
FISHING TACKLE
GREETING CARDS
COSMETIC SETS
PLAYING CARDS
HANDKERCHIEFS
MANICURE SETS
OPTICAL GOODS
DISPLAY CASES
TOOTH BRUSHES
RECIPE CARDS
HEATING PADS
MAKEUP BOXES
SEWING SETS
INDEX CARDS
VANITY SETS
SUSPENDERS
PAPETERIES
CIGARETTES
GOLF BALLS
FRUIT CAKE
GIFT BOXES
BATH SALTS
STATIONERY
SHOE LACES
TOOL CASES
HUMIDORS
BLANKETS
NECKWEAR
LAYETTES
GARTERS
PLAQUES
NEEDLES
HOSIERY
THREADS
CIGARS
GLOVES
CANDY
GAMES
BULBS
BELTS
BOOKS
DRUGS
SILKS
SEEDS
SOAP
TOYS
GUM

Consider the Beauty . . . . . and Economy of RED CEDAR *Containers for Added* SALES APPEAL

We are prepared to furnish any shape---size---design---color---quantity---in Red Cedar or other woods, in natural or colored lacquer finishes.

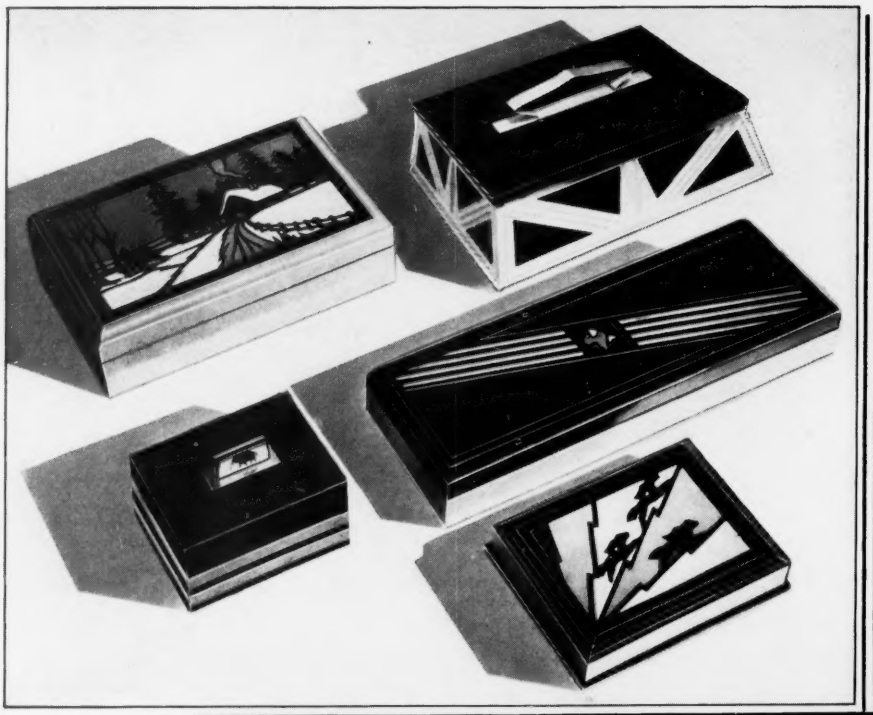
Investigate the possibilities of these handsome containers---they are not as expensive as they look!

RED CEDAR Containers have never yet failed to produce phenomenal results wherever we have recommended them as sales stimulators.

We'll gladly talk over your merchandising plans if you wish, and submit a sample container designed to dramatize your particular product. No inquiry is too small to receive our careful attention.

"SINCE 1907" is your assurance that our years of sound experience will be of value to you. We have some mighty interesting figures to submit . . . . . figures on outstanding sales successes we have helped to develop for others. They are yours for the asking. Write TODAY!

PETERSON BROTHERS
165 North Elizabeth Street
CHICAGO



"THE BIG 4"

EYE APPEAL—NOVELTY—UTILITY—PRICE, are the four cornerstones underlying the foundations of every Pilliod development. Shrewd is the merchandiser who enlists as sales stimulators the aid of containers that possess these four essentials.

We offer a development service supported by a wealth of experience, able designers, modern equipment, straight line production.

Pilliod etched wood, etched metal and luster flock covered containers that resemble velour, are recognized as outstanding developments of recent years. Many other unique and novel finishes and linings are available.

Descriptive literature and full information gladly sent on request.

The **PILLIOD CABINET COMPANY**

SWANTON · · · · · · · · · · · · · · · · · · OHIO

XUM

GRAY MATTER *goes into* PACKAGING



TRADE MARK BUREAU

Typical inquiry: "Please tell us if . . . is clear as brand for soap." We reply: "Files show name in use; shall we suggest a name?" "Please do." We suggest the name LADY LOIS." "Good; we'll use it."

NOTE: Our records do not show this name in use—at present—for soap.



MARKETING SERVICE

Typical inquiry: "Our new product is to be marketed in different channels than our regular line; can you help us?" Often the "U S" Marketing Service spends hours in retail stores, watching consumers buy, and conferring with store people, to help guide a manufacturer in preparing and using the right kinds of packages and sales helps.



PACKAGING COUNSEL

Typical inquiry: "What shape—what colors—what design—would you suggest for packaging our product?" Recently "U S" Packaging Counsel Division advised changing a soap bar in shape, then designed wrapper, carton, and display container. Results: More economical packaging, improved appearance, greater convenience in use.

The first step in modern merchandising is careful thinking. For months before launching a product, you consider brand names, marketing questions, package designs, shapes, colors.

For this period of planning, "U S" offers a service that is almost priceless.

Typifying this service, the story of launching LADY LOIS Toilet Soap—a fictitious name—is told pictorially on this page.

Whatever your product, "U S" can help you select brand names that are "clear;" convey valuable suggestions on marketing; give you wise counsel on appropriate packaging materials; create and produce color-printing in the form of labels, cartons, and "sales-spot" advertising, all harmoniously designed to speed up your sales.

This service—yours for the asking—is as near to you as your telephone.



ON THE COUNTERS



IN THE WINDOWS



ON THE BILLBOARDS

THIS THOUGHTFUL PREPARATION ... BECOMES COLORFUL SALES POWER!



Using GRAY MATTER *for you*

We don't believe that our "gray matter" is any better than anyone else's, or that we have more of it. We use it differently,— that's all.

We study a customer's problems as if they were our own. That's not altogether unselfish, either; obviously, if your product succeeds, you'll need more packaging materials and "sales-spot" advertising;* so it's to our interest to produce the most sales-compelling color-printing for you that we can.

On the preceding page is a pictorial representation of what "U S" is doing all the time. The keynote to this kind of service is the intelligent personal activity of the "U S" sales representative — trained to use his "gray matter" for the benefit of his customers, because it is to his own best interests to do so. He is a serious-minded well-informed business man, who makes every minute of his visit worth while to you.

*Send for copy of booklet
"SALES-SPOT ADVERTISING"
No charge or obligation



There's a "U S" Representative Not Far From You

CALL HIM INTO CONFERENCE

BALTIMORE 128 Cross St.	DETROIT 7915 Indiana Ave.	PHILADELPHIA 437 Chestnut St.
BOSTON 80 Boylston St.	INDIANAPOLIS 1003 Majestic Bldg.	PITTSBURGH 609 Renshaw Bldg.
CHICAGO 208 W. Wacker Drive	KANSAS CITY 509 Fairfax Bldg.	SAN FRANCISCO 112 Market St.
CINCINNATI 328 Beech St.	MINNEAPOLIS 433 Palace Bldg.	SEATTLE 1107 Hoge Bldg.
CLEVELAND 1104 Leader Bldg.	NEW YORK 52 East 19th St. 105 Hudson St.	ST. LOUIS 413 Frisco Bldg.

All Modern Color Processes are Employed in

Cincinnati, Ohio — Brooklyn, N. Y. — Baltimore, Md.
Chicago, Ill. — Buffalo, N. Y. — Erie, Pa. — Newport, Ky.

The Plants of "U S" and Associated Companies

COLOR PRINTING HEADQUARTERS

THE UNITED STATES PRINTING & L

XUM

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better
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XUM



★FOIL IN ALL ITS FORMS

WRAPPERS • TITE-WRAPS • LINERS
CARTONS • LABELS • SEALS
CANISTERS • BOX COVERINGS
SIGNS AND DISPLAYS

★COMPLETE PACKAGING SERVICE

TESTING LABORATORY • PRINTING
DESIGNING • PRODUCTION

★GET THE FOIL FACTS FIRST

OUR NEAREST OFFICE IS
AT YOUR CALL

★REYNOLDS METALS COMPANY

INCORPORATED

"Largest in the World"

19 RECTOR STREET • NEW YORK, N. Y.

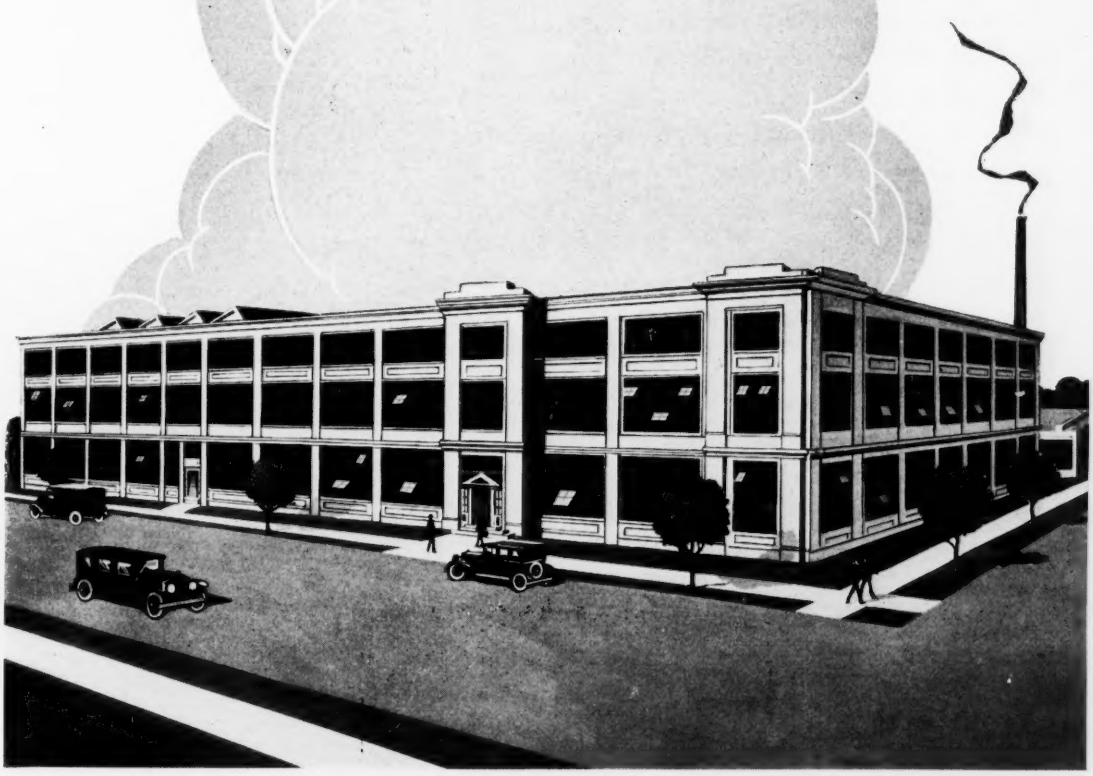
1259 So. Campbell Avenue
CHICAGO, ILL.

345 Ninth Street
SAN FRANCISCO CAL.



XUM

PNEUMATIC AUTOMATIC PACKAGING MACHINERY



PNEUMATIC SCALE CORPORATION, LTD.

NORFOLK DOWNS . (QUINCY) . MASS.

XUM

A SPECIAL THIRTY-TWO PAGE SECTION OF

PNEUMATIC SCALE PACKAGING MACHINERY

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XUM

AUTOMATIC MACHINERY FOR EVERY PACKAGING PURPOSE

FILLING • WEIGHING
LINING • SEALING
LABELLING • WRAPPING
For ALL TYPES of
CARTONS, CANS & BAGS

PNEUMATIC SCALE CORPORATION, LTD.
NORFOLK DOWNS • (QUINCY) • MASS.

PACKAGING GOODS AUTOMATICALLY
The Pneumatic Way

•

ORIGIN AND DEVELOPMENT

CUSTOMS change in the methods of purchasing food, just as in everything else. Years ago it was considered thrifty for the head of the family to go to the store and buy supplies in quantity or bulk:—flour and sugar by the barrel, butter by the firkin, and such edibles as crackers, beans, rice, starch, tea, coffee, salt, spices, and many others, loose or by the pound.

And in the past such a method may have been economical and sensible. But times change. The old-time commodious kitchen, the large pantry with plenty of storage space, both are becoming extinct. So to a large extent is the cook herself.

In fact, the modern larder would be swamped by the vast quantities of foodstuffs our ancestors used to buy at one time. This is due in large measure to the fact that an ever-increasing percentage of the population of cities are living, not in spacious, separate dwellings, but in apartment houses where every inch counts. It has become automatically impossible to indulge in the habit of buying ahead a surplus of anything—from bird-seed to oatmeal, from crackers to cloves.

Nowadays the housekeeper finds it convenient, economical, and preferable, to purchase in small quantities.

Understanding this, the manufacturer and retail dealer met the demand by selling innumerable sorts of necessities and conveniences of life (ranging from cooked foods to cosmetics) in packages, cartons, and cans. In this way, the consumer is given the added advantage of procuring that exact brand which he prefers, knowing in advance precisely what he will get for his money.

How has this been made possible? The answer is simple:—through the invention and development of packaging machinery.

By such means the manufacturer can place at the disposal of his critical consumer the particular commodity desired. And he can be sure of having his product and its quality instantly recognized and appreciated. Thus this packaging machinery not only protects good will, it results in a positive advertising value impossible in the days when goods were sold in bulk with no recognizable mark.

These methods made possible by packaging machinery have also revolutionized commercial methods—to their improvement.

XUM

A Pioneer With Over Forty Years' Experience

FROM its earliest and simplest beginning it has developed its system by steadily meeting the ever-increasing requirements which naturally resulted from the expansion of the package goods business produced by the introduction of its earlier machinery.

Thus have come in response to distinct needs, and as a matter of logical growth, the various later operations that have given the system its present completeness.

In order to serve in reasonably quick time the ever-increasing demands prevailing for its production, this company has completed its ninth addition to its plant which has increased fourfold the floor space it previously occupied.

Its plant is up-to-date in every detail, the factory buildings being of reinforced concrete, equipped with new machinery of the latest and most approved types.

Among its customers are the largest producers in the country, the best known national advertisers, whose names are familiar in every home.

●

The Following Products Can be Handled Most Successfully by

PNEUMATIC PACKAGING MACHINERY

BARLEY-PEARL	HOMINY	RICE
BEANS	INFANT'S FOOD	SALT
BORAX	MACARONI	SALTS—EPSOM
BRAN	MOTH BALLS	SEED—BIRD
CEREALS	MUSTARD	SOAP CHIPS
CHOCOLATE & COCOA	NAPTHA FLAKES	SODA—BAKING
COCOANUT	NOODLES	SODA—BICARBONATE
COFFEE	PEAS—SPLIT	SODA—SAL
CORN MEAL	POULTRY AND STOCK REMEDIES	SPAGHETTI
CREAM OF TARTAR	POWDER—BAKING	SPICES
CRUMBS—BREAD	POWDER—FACE	STARCH
DRIED FRUITS & VEGETABLES	POWDER—JELLY	SUGAR
DRUGS	POWDER—PHOTO FIXING	SULPHUR
FARINA	POWDER—SOAP	TAPIOCA
FLOUR	POWDER—TALCUM	TEA
GELATINE	POWDER—TOOTH	VERMICELLI

NOTE: Machines seal cartons in which are packed Inner Tubes, Baseballs, Golf Balls, and other articles of such a character that cannot be weighed automatically. Can Capper can be used for applying lids to cans on goods that cannot be weighed automatically.

A stock of over $400,000 worth of interchangeable jig made parts constantly on hand. All parts have numbers stamped on them, and a special Catalog of each machine, showing its parts and numbers, is furnished each customer for convenience in ordering by letter or telegraph. Technically trained field engineers are permanently located at strategic points in order that users of Pneumatic Equipment may be assured of prompt and efficient service.

Suggestions for Procedure

WHEN DESIGNING CARTONS AND LABELS

for Machine Production

THE present tendency with manufacturers of packaged products, both dry and liquid, is to stress the design of their package in an effort to beautify the design and make it so striking that it will stand out from its competitors. Many of these designs are produced by artists of note, or perhaps by the advertising department.

Oftentimes, the artists or advertising men, capable in their particular lines, lose sight of the fact that the package designed, which will be produced in quantity by machine, must be held within certain limitations to permit of practical machine production.

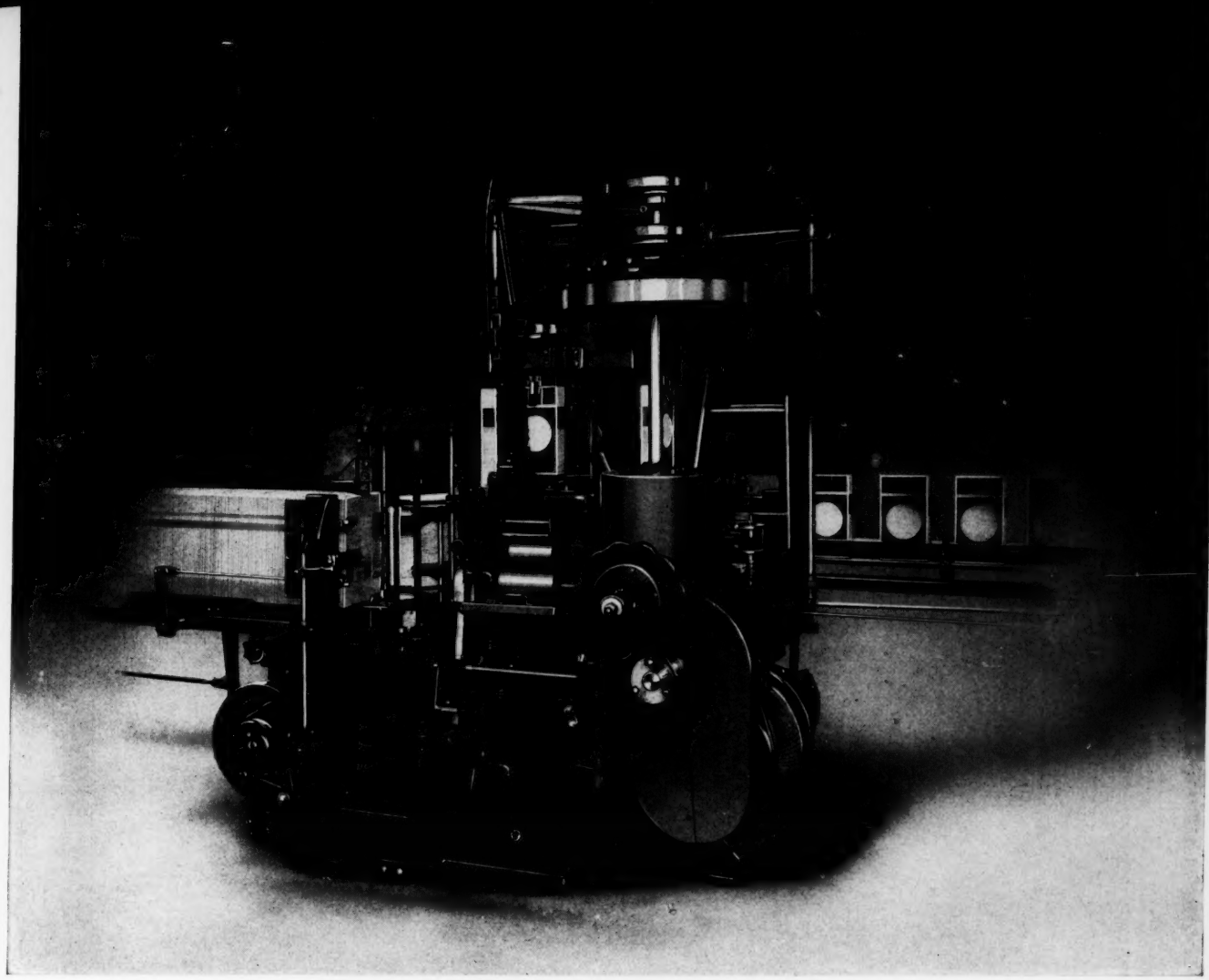
Cartons with extraordinary broad panels are designed so that a larger advertising surface may be presented when the package is on the merchant's shelf. Consequently, the side panels of the package become too narrow to be handled rapidly by a machine. Elaborate designs in wrappers are produced. While beautiful in themselves, they do not permit of the accurate and rapid registering necessary when passed thru a machine.

The same thought applies, particularly, to modern bottle and jar design, many of them beautifully modernistic, but utterly impractical from a machine handling standpoint.

It is suggested that in every instance where a new package or wrapper is being considered that models of the new design be submitted to the manufacturer of the machine that must handle it so that the machine manufacturer can offer his suggestions and assure the user of the new design that his package, or wrapper is going to be practical from the machine handling standpoint.

The Pneumatic Scale Corporation maintains an advisory department for this very purpose. We will be very glad to have you utilize the service of this department, without obligation or cost. Send us samples of your packages or wrappers for our constructive suggestion.

XUM



PNEUMATIC HI-SPEED BOTTOM SEALER

Class No. 1117

operating with

PNEUMATIC HI-SPEED CARTON FEEDER

Class No. 8213

SPECIFICATIONS

RANGE—Will handle cartons within the following sizes:—

Minimum—1" thick, 2" wide, 3¼" high (between score lines)

Maximum—3¾" thick, 6¼" wide, 9¼" high (between score lines)

Note: Minimum and maximum sizes cannot be handled on the same machine.
Highest operating efficiency obtained when number of sizes limited to four.

EQUIPMENT—Cost of machines includes equipment to handle one size package. Equipment for additional sizes extra.

SPEED—60 packages per minute.

FLOOR SPACE—(including Hi-Speed Bottom Sealer and Carton Feeder) 13'5" x 5'.

OPERATOR—No operator required. Attendant only to replenish reservoir of Carton Feeder twice an hour.

WEIGHT—Carton Feeder—from 2200 to 2300 lbs.
Bottom Sealer —from 4300 to 4500 lbs.

HORSEPOWER—1½ HP required for both machines. The Carton Feeder is driven and operated from Bottom Sealer. Cost of machine includes motor. Countershaft drive can be furnished when required.

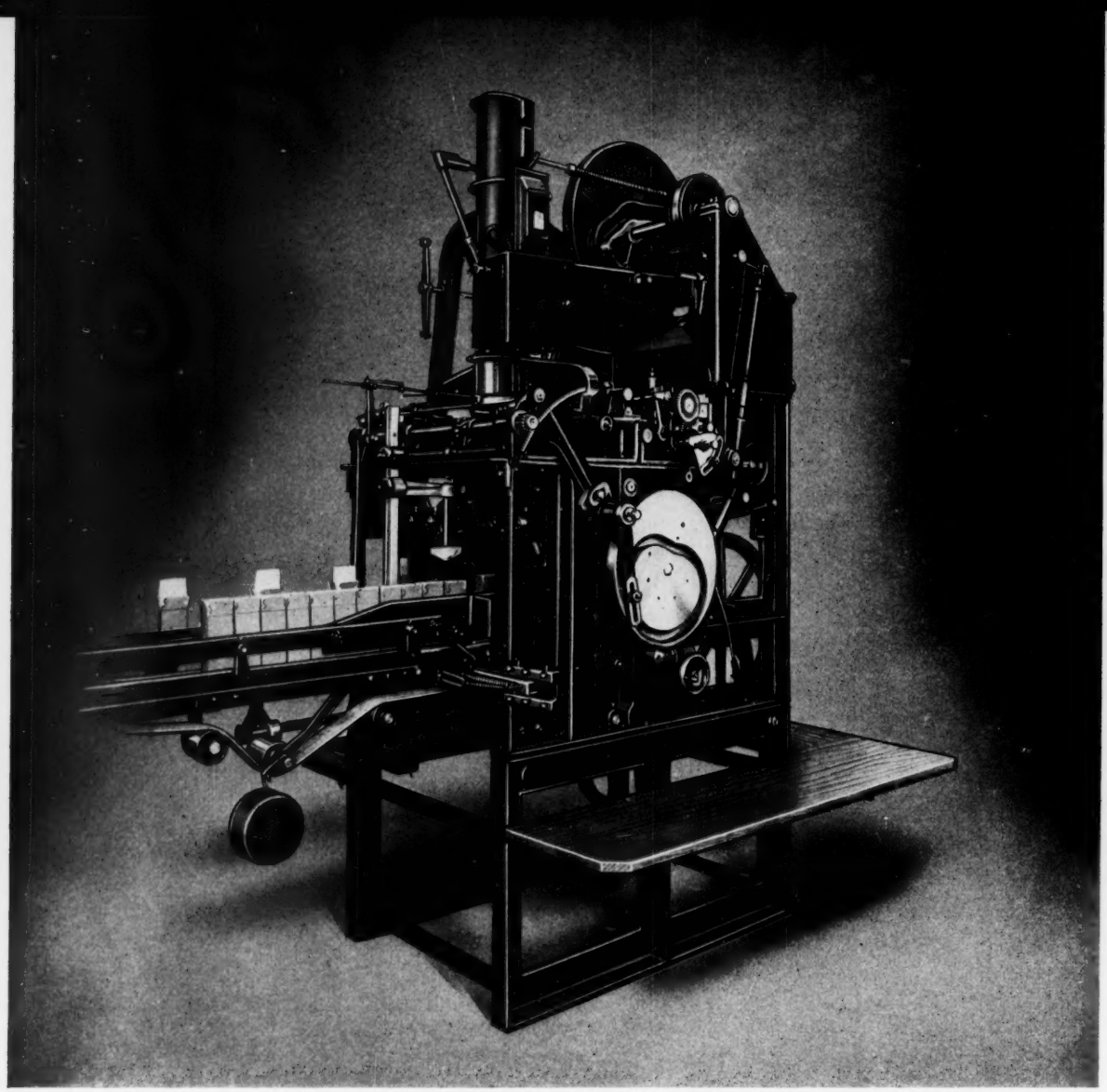
ADJUSTABILITY—About 45 minutes required to change from one size package to another.

CONVEYORS—Can be equipped with either single or double conveyors. Double conveyors include device to separate the cartons or other containers into two lines; each line feeding to lining or weighing machines, operating at 30 containers per minute.

DATING DEVICE—A device for blind stamping date or identification mark on packages can be furnished as extra equipment and attached to this machine.

Note: Other types of Carton Feeders and Bottom Sealers include standard machines operating at speeds of 30 per minute.

XUM



PNEUMATIC AUTOMATIC LINING MACHINE

Class No. 4142

Materials affected by changes in atmospheric conditions require additional protection. This is provided by the use of the Pneumatic Automatic Lining Machine which cuts a proper size piece of paper from a roll, forms it to the shape of the container and inserts it, the paper lined container then passing along to the filling machine.

SPECIFICATIONS

RANGE—Will handle cartons of the following sizes:—
Minimum—1½" thick, 3" wide, 5½" high (between score lines).
Maximum—5" thick, 8" wide, 13-15/16" high (from bottom score line to upper edge of top flap).

EQUIPMENT—Price includes equipment for one size package only. Equipment for additional sizes extra. Machines will handle either parchment, glassine, foil, wax and other papers.
Standard machines are supplied for either glue seal for parchment or glassine paper; hot seal for wax papers or hot paraffine seal for foil.
Machines can be equipped for both glue and hot seal on special order.

SPEED—28 to 30 packages per minute.

FLOOR SPACE—6'1" x 7' x 8'9" high. (Conveyors not included.)

OPERATOR—One operator required when machine is used alone. No operator required when used in connection with other machines.

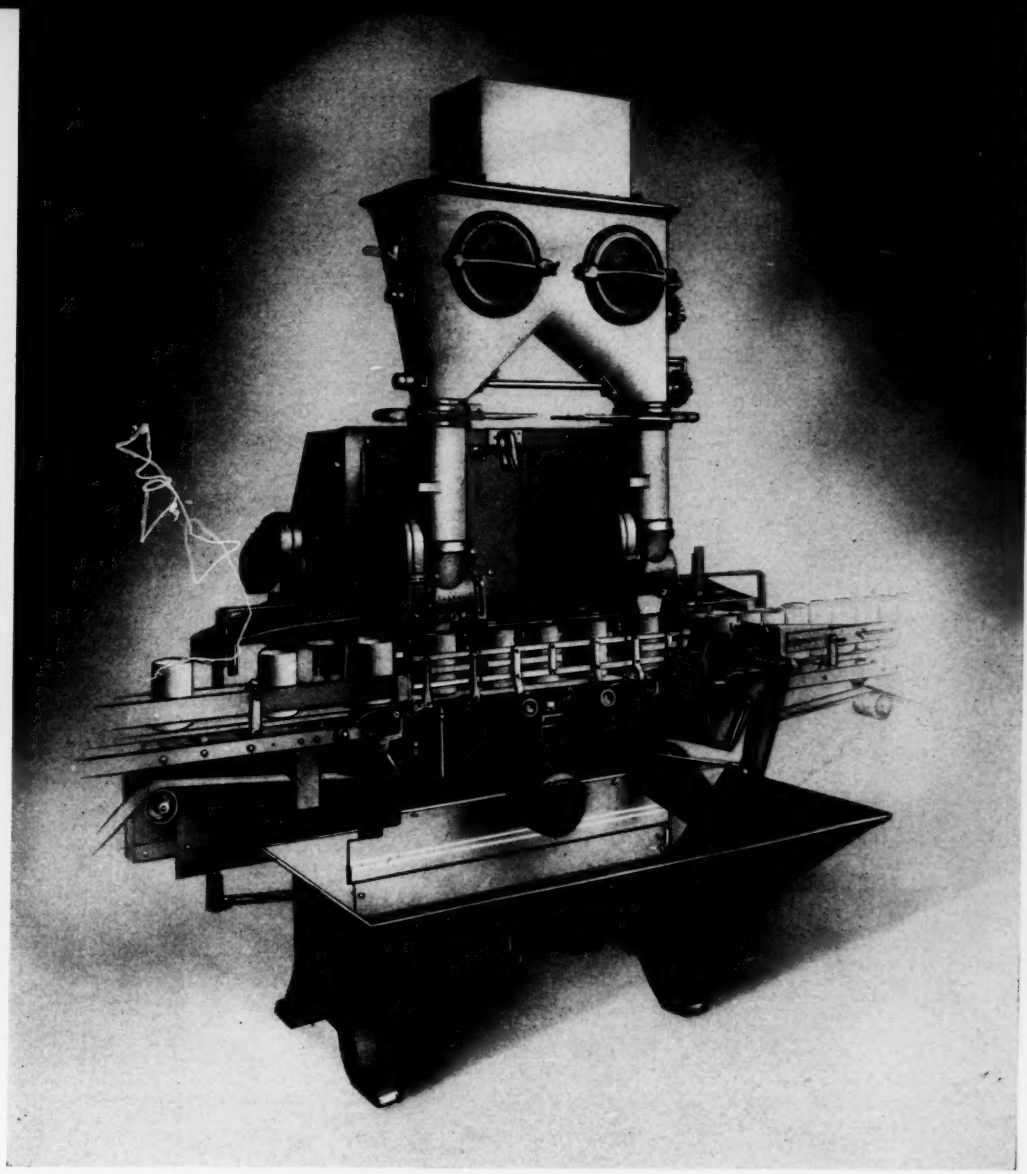
WEIGHT—Domestic Shipping—4,500 lbs.

HORSE-POWER—¾ HP required. Price of machine includes motor.

ADJUSTABILITY—Machines flexible and adjustable to several sizes within reasonable range. Requires about 45 minutes to change from one size package to another.

NOTE: Lining machines are in two models, each handling a separate range of carton sizes. Cartons 2½" high to 13-15/16" high (from bottom score line to upper edge of top flap) can be handled on one or the other model.

XUM



PNEUMATIC AUTOMATIC GROSS WEIGHT WEIGHING MACHINE TWO SCALE STRAIGHT LINE TYPE

Pneumatic Weighing Machines have always been accepted as the standard to which all others aspire.

The Two Scale Weighing and Filling Machine illustrated is the staunch, refined product of years of experience in solving difficult weighing problems.

A perfect, accurate machine handling not only all free flowing material but many semi-free flowing or rigid materials which tend to bridge or clog machine hoppers.

SPECIFICATIONS

RANGE—Will handle cartons of the following sizes:—Minimum—1" thick, 2" wide, 4½" high (between bottom score line and upper edge of top flap). Maximum—4" thick, 7¾" wide, 13-15/16" high (between bottom score line and upper edge of top flap).

EQUIPMENT—Equipped for one size package only. Equipment for additional sizes extra.

SPEED—25 to 30 packages per minute, depending on size of package and nature of goods.

ACCURACY—1/16 oz. plus or minus weight specified.

FLOOR SPACE—5'6" x 3'6" x 8' high approximately. Height varies according to available head room. (Conveyors not included.)

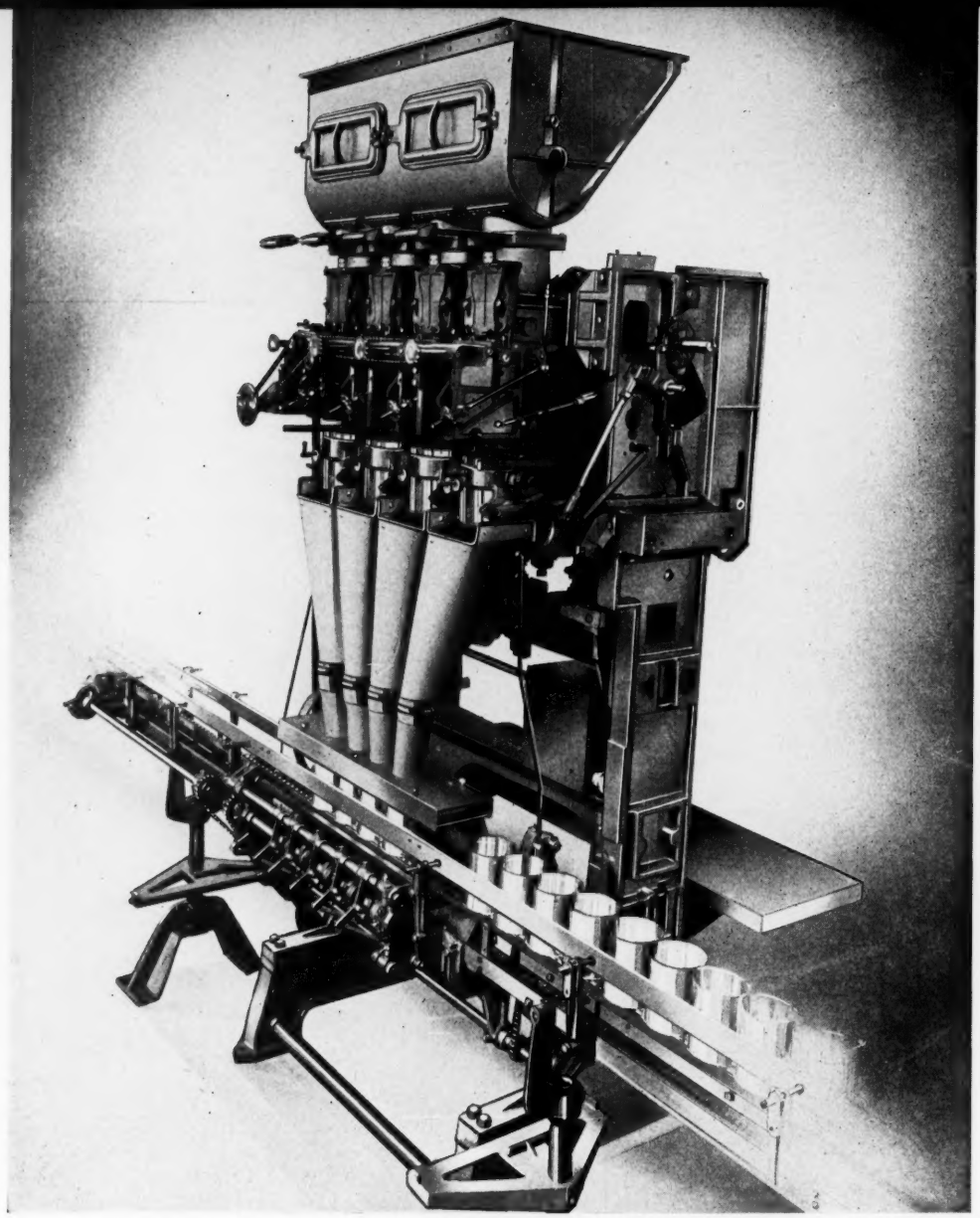
OPERATOR—One operator required when machine is used alone. No operator required when used in connection with other machines.

WEIGHT—Domestic Shipping—2500 lbs.

HORSE-POWER—½ HP required. Price of machine includes motor.

ADJUSTABILITY—About 15 minutes required to change from one size package to another. When changing from one material to another, Hoppers and Machine must be thoroughly cleaned, requiring about one hour's time.

XUM



HI-SPEED NET WEIGHT WEIGHER

Class No. 2600 to 2607

Weights and Measures Bureau officials are rigidly enforcing the laws governing correct weights of goods in packages.

Full weight packages are necessary. Over weights mean serious losses. This new type multiple Net Weight Weigher assures accurate weights at a high speed. It is the standard machine with packers who demand quantity production with a smooth, even, dependable operation.

SPECIFICATIONS

RANGE—Will handle round and rectangular containers of the following sizes:

Round
Minimum—1½" Dia. x 2½" high. Maximum—6¾" Dia. x 13-15/16" high.

Rectangular
Minimum—1" x 2" x 2½" high. Maximum—4" x 7" x 13-15/16" high (from bottom score line to upper edge of top flap).

Maximum Capacity of either round or rectangular containers must not exceed 200 cubic inches.

EQUIPMENT—Equipped for one size. Equipment for additional sizes extra.

SPEED—60 per minute.

ACCURACY—1/10 oz. plus or minus weight specified.

FLOOR SPACE—4'3" x 5' x 9'2" Approx. (Conveyors not included).

OPERATOR—One operator required when machine is used alone. No operator required when used in connection with other machines.

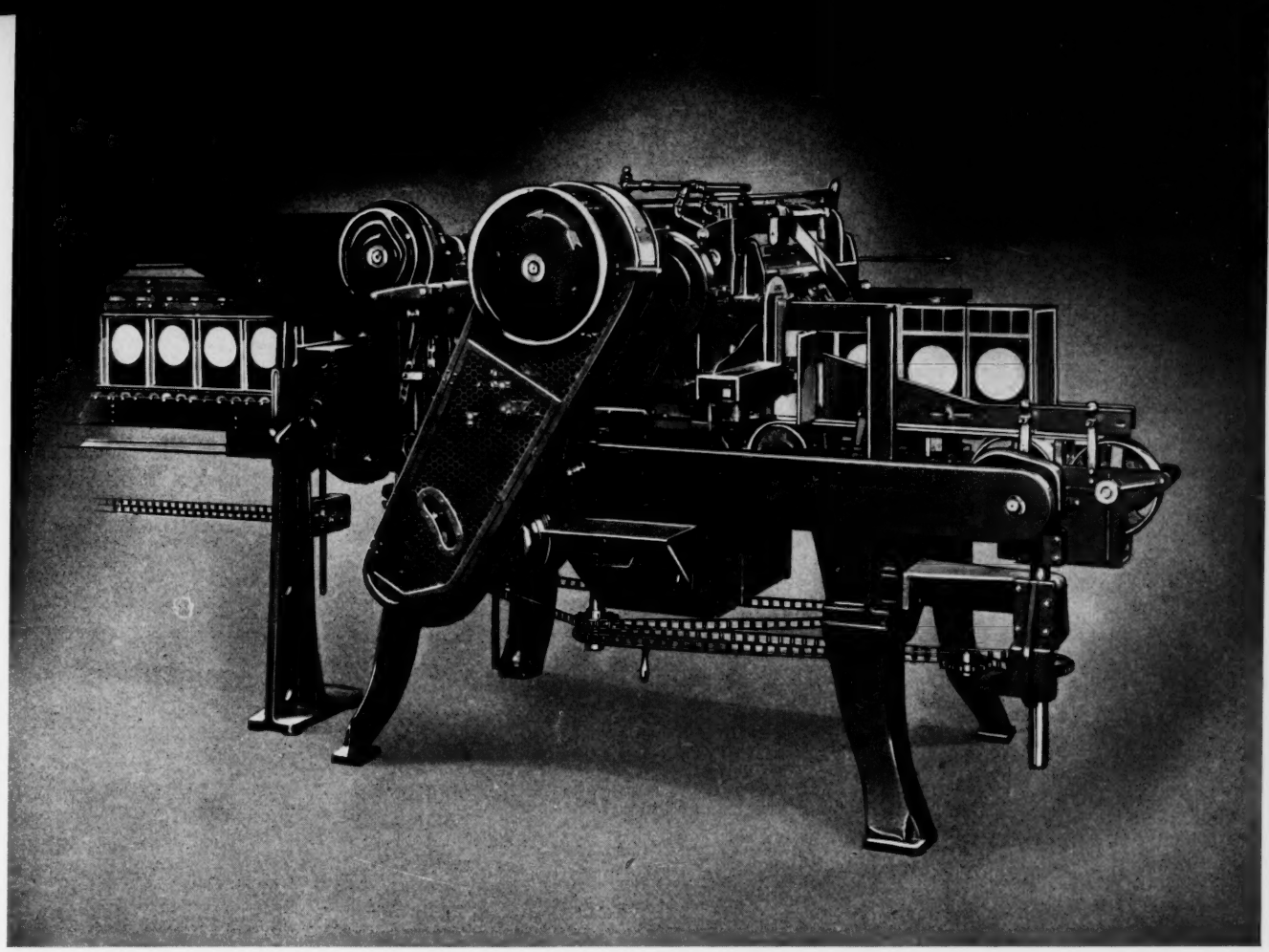
WEIGHT—Domestic Shipping—2500 to 4500 lbs. depending upon type of machine.

HORSEPOWER—½ HP motor. Price of machine includes motor.

ADJUSTABILITY—About 30 minutes required to change from one size to another.

PNEUMATIC SCALE CORPORATION, LTD., Norfolk Downs, (Quincy) Mass.

XUM



PNEUMATIC AUTOMATIC HI-SPEED TOP SEALING MACHINE

Class No. 3122

The usual difficulties in sealing the top flaps of cartons have been overcome with this newly refined Top Sealing Machine. High speed operation is attained with a precision and smoothness which "float" the filled cartons through the machine without danger of spilling the contents.

A new glue feed control prevents glue splashing on machine or belts and glue supply requires replenishing but once a day.

Ingenious devices accumulate into one line the output of two slower operating weighing machines. A turning device to turn the sealed cartons broadside on the dryer belt doubles the drying time insuring a tighter seal.

SPECIFICATIONS

RANGE—Will handle cartons of the following sizes:
Minimum—¾" thick, 1¼" wide, 2½" high (between score lines).
Maximum—4⅜" thick, 7¾" wide, 9⅜" high (between score lines).

EQUIPMENT—Equipped for one size package only. Equipment for additional sizes extra. Accumulating device furnished when necessary at no additional charge. Turn-around device for placing cartons crosswise in Dryer will be charged for as additional equipment.

SPEED—60 packages per minute.

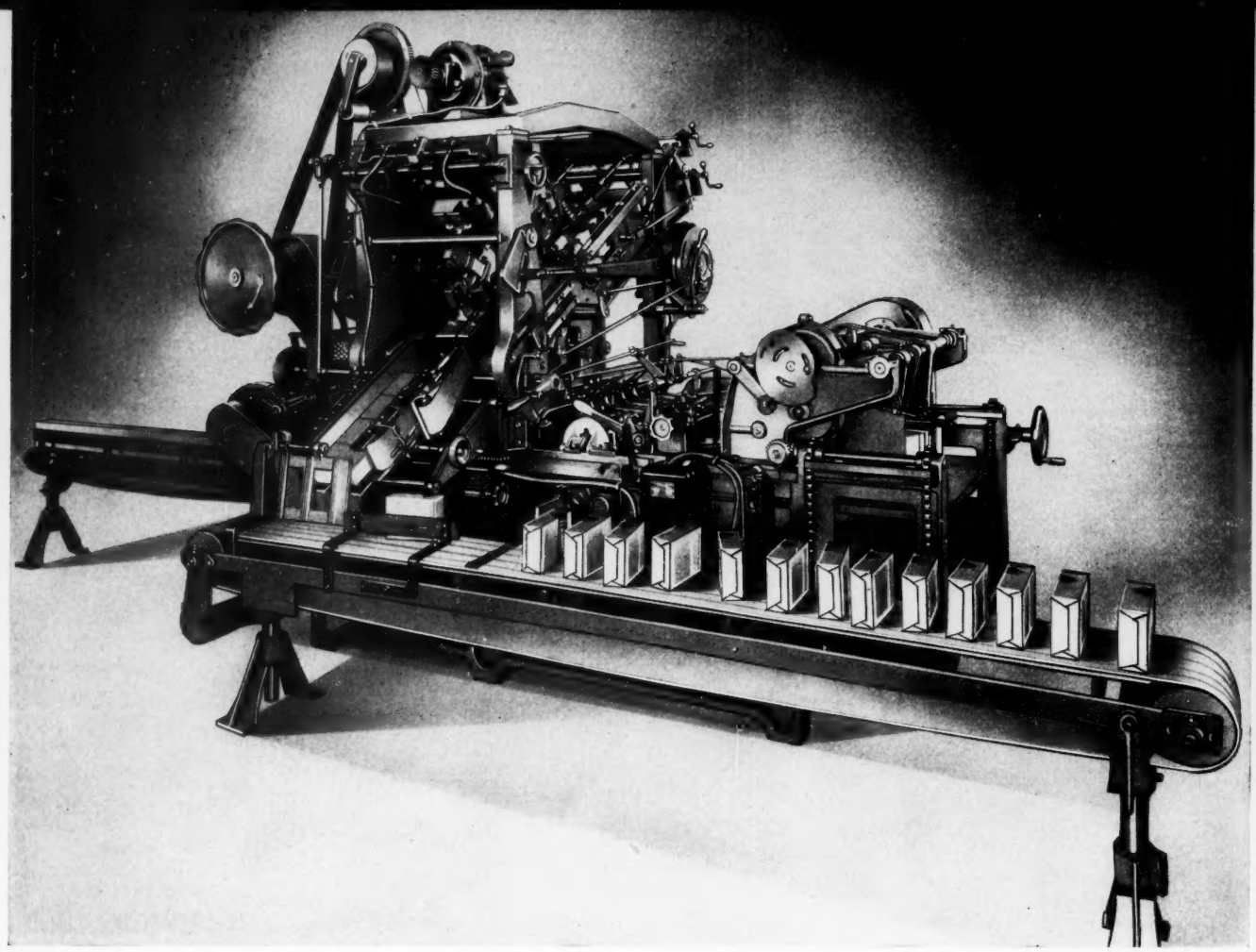
FLOOR SPACE—6'6" x 4'6" x 5'7" high approximately. (Dryer not included.)

OPERATOR—One operator required when machine is used alone. No operator required when used in connection with other machines.

WEIGHT—
Domestic Shipping—2700 lbs. with 10' Dryer.
Domestic Shipping—3200 lbs. with 16' conveyor dryer.

HORSE-POWER—¾ HP required. Price of machine includes motor.

ADJUSTABILITY—From 15 to 30 minutes required to change from one size package to another.
A device for counting number of packages sealed can be furnished as extra equipment and attached to this machine.



PNEUMATIC AUTOMATIC HI-SPEED TIGHT WRAPPING MACHINE

Class No. 5213

Tight Wrapping provides the ultimate in protection to packaged products, particularly when the wrappers are applied by the Pneumatic method.

By using a straight-cut, rectangular wrapper, a positive triple seal is obtained at each corner of the package. Unless these corners are properly protected, material such as flour and cereal are subject to weevil infestation.

Straight cut wrappers are less expensive, easier to handle, and produce the strongest type of package.

SPECIFICATIONS

RANGE—Will handle shells within the following sizes:—
Minimum 1½" x 2⅝" x 4¼" (between score lines).
Maximum—(standard machine) 3¾" x 6½" x 10⅛" (between score lines).
Maximum—(special machine) Refer to home office for information.

EQUIPMENT—Price includes equipment for one size package only. Equipment for additional sizes extra.

WRAPPERS—Layout of Wrapper, showing correct location of panels, etc., furnished on request.

SPEED—60 wrapped packages per minute.

FLOOR SPACE—10' x 6'6" x 8'3" high (conveyors not included).

OPERATOR—One operator required.

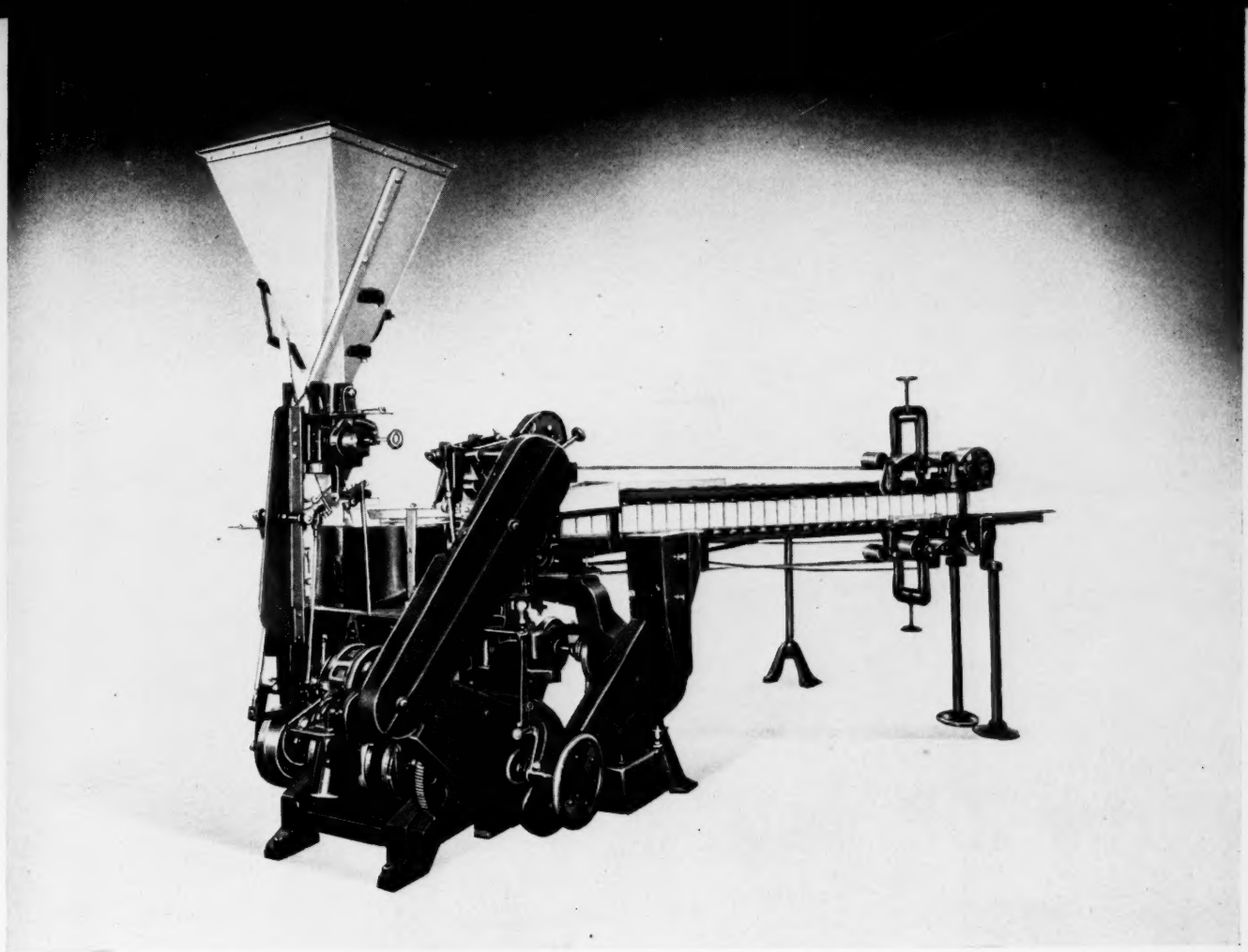
WEIGHT—Domestic shipping 8900 lbs.

HORSE-POWER—1½ HP required. Price includes individual motor. Countershaft drive furnished, if desired.

ADJUSTABILITY—The Tight Wrapper is not readily adjustable. The most difficult adjustments are when all three dimensions of a package vary. When this occurs about four hours will be required to change from one size to another.
Frequent changes and adjustment are not recommended.

Note: The Pneumatic Tight Wrapper can be furnished in a smaller type to wrap packages of the following dimensions:
Minimum—1⅛" x 1¾" x 2¾".
Maximum—2" x 3¾" x 7".

XUM



COMBINATION CARTON FILLING AND SEALING MACHINE

Class No. 3711

All the operations of feeding, sealing and filling the cartons are combined in this one machine. An ideal machine for use where floor space is limited.

Material is measured and a remarkable degree of accuracy maintained especially where material packed is of uniform volume.

SPECIFICATIONS

RANGE—Will handle cartons of the following sizes: Minimum—⅞" x 1¾" x 2¼". Maximum—2¼" x 4" x 7".

EQUIPMENT—Equipped for one size package only.

SPEED—60 packages per minute.

ACCURACY—Measuring Device used for Filling. Accuracy dependent upon the uniform consistency of the material.

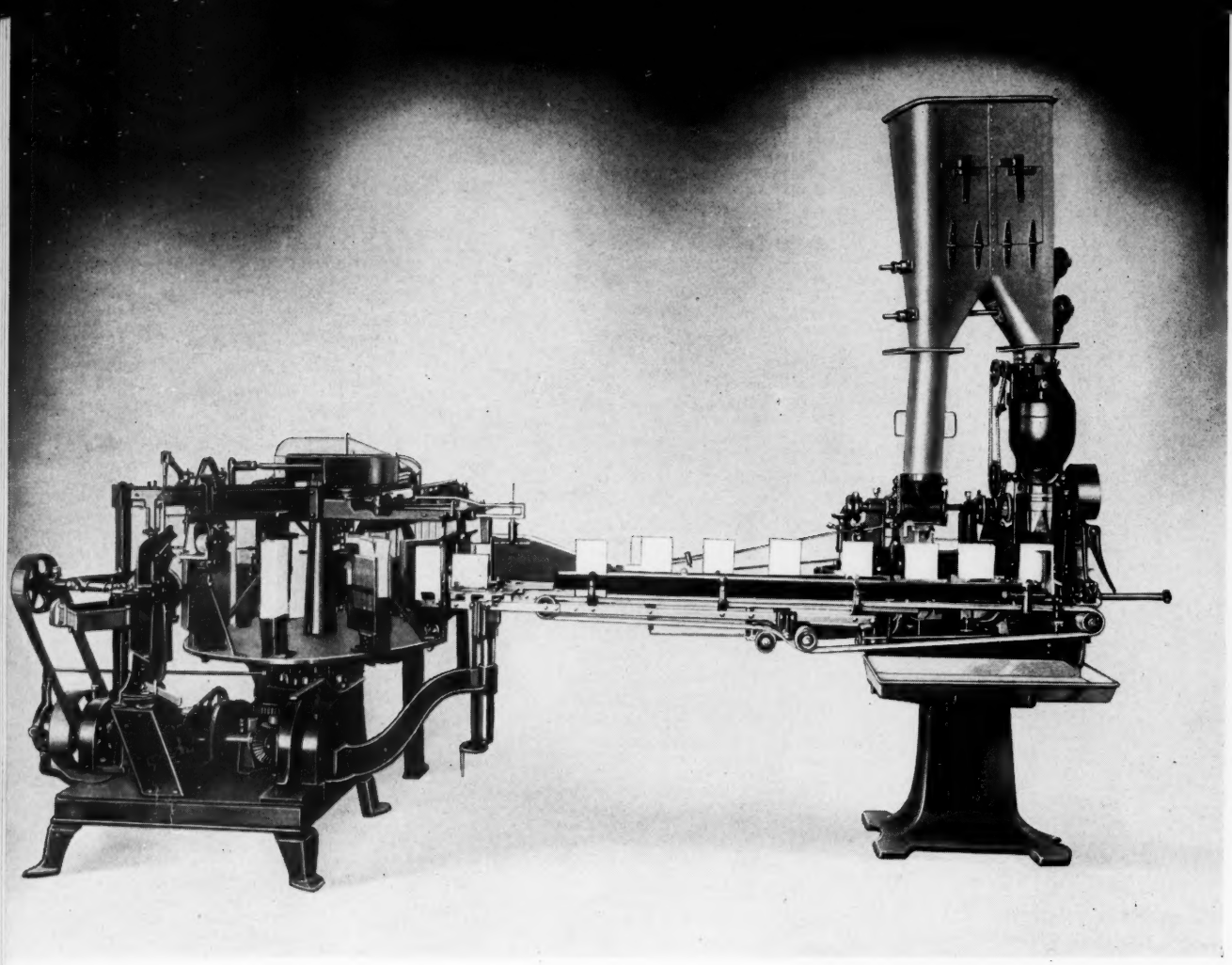
FLOOR SPACE—8'3" x 11'7" x 7'10" high (Carton Feeder & Dryer included)

OPERATOR—One operator required for packing.

WEIGHT—Domestic Shipping—4000 lbs.

HORSEPOWER—½ or ¾ HP motor depending on the nature of the goods. Price of machine includes motor.

ADJUSTABILITY—Machine not readily adjustable. Recommended for one size only.



DUPLEX SEALER AND STRAIGHT-LINE WEIGHER

Class 3211 Class 2412

Where medium or high speed operation is not essential, the Duplex Sealer and Straight-line Weigher provides a dependable and efficient means of sealing and filling cartons. Weigher handles both free-flowing and non-free-flowing materials.

SPECIFICATIONS

RANGE—Will handle cartons of the following sizes:
Minimum: ¾" thick, 1¼" wide, 2½" high (between score lines).
Maximum: 3¾" thick, 5⅜" wide, 11½" high (between bottom score line and upper edge of top flap).

EQUIPMENT—Equipped for one size package only. Equipment for additional sizes extra.

SPEED—15 packages per minute.

ACCURACY—(Weigher) 1/16 oz. plus or minus weight specified.

FLOOR SPACE—13'10" x 12'6" x 8' high approximately. Height varies according to type of hoppers used.

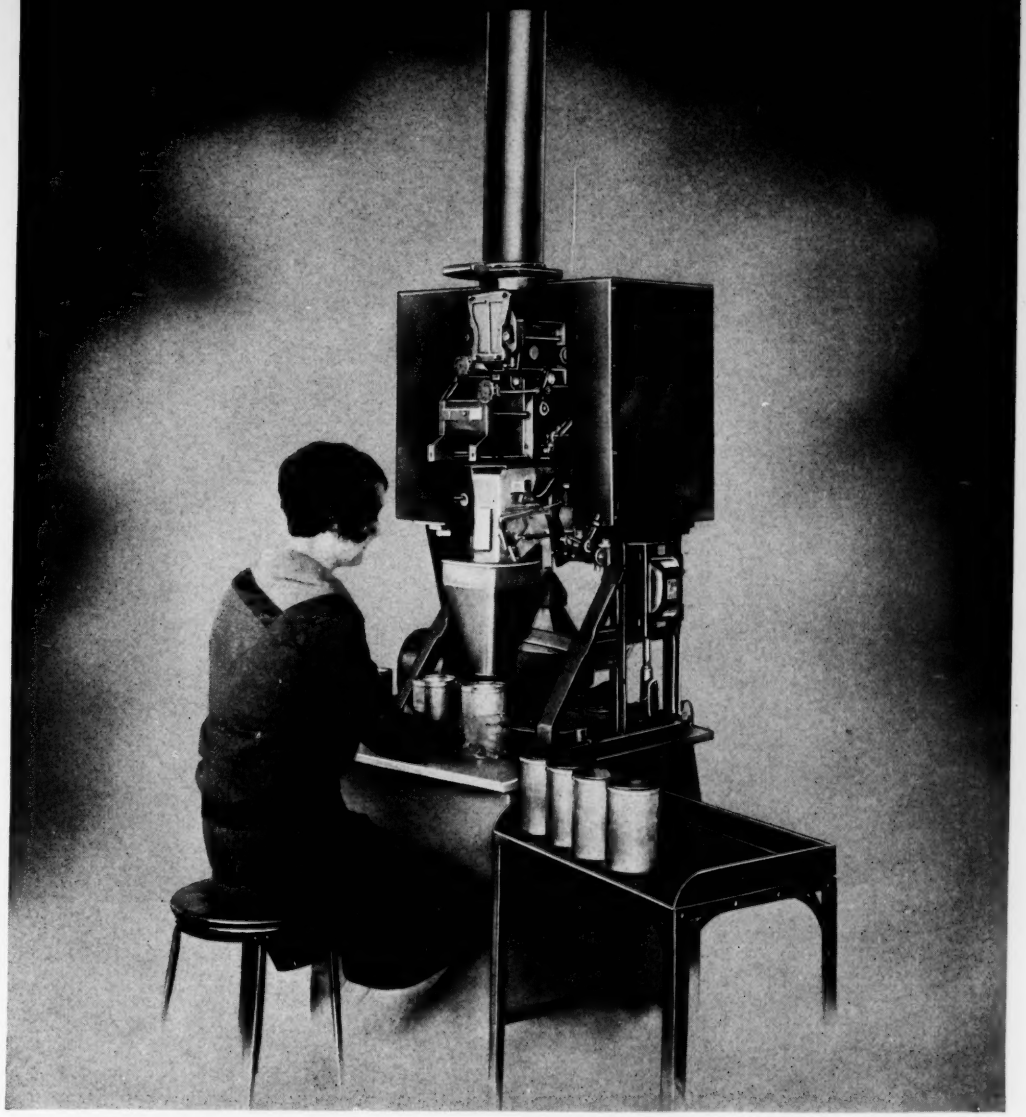
OPERATOR—One operator required for both operations of feeding cartons to sealer and transferring bottom-sealed cartons to weigher conveyor.

WEIGHT—
Domestic Shipping: Duplex Sealer 2400 lbs.
Domestic Shipping: Straight-line Weigher 1800 lbs.

HORSEPOWER—½ HP required for each machine. Price of machines includes motors.

ADJUSTABILITY—About 30 minutes required on Duplex Sealer to change from one size package to another. When changing from one material to another, Hoppers and Weigher must be thoroughly cleaned, requiring about one hour's time.

XUM



SEMI-AUTOMATIC NET WEIGHT WEIGHER

Class No. 2312

The Pneumatic Semi-Automatic Net Weight Weigher was developed to meet the demand for a small inexpensive, yet thoroly accurate and reliable weighing machine.

Built to withstand hard usage, the same proved and accurate principles used in our higher priced, high speed machines, are utilized in this smaller unit.

To those packers with comparatively small production, who demand positive operation and accuracy in weights, this weighing machine is recommended.

Semi-Automatic carton sealing machines to be operated with this semi-automatic Weigher are included in our line of standard equipment. Details furnished on application.

——SPECIFICATIONS——

RANGE—Will handle round and rectangular containers of the following sizes:

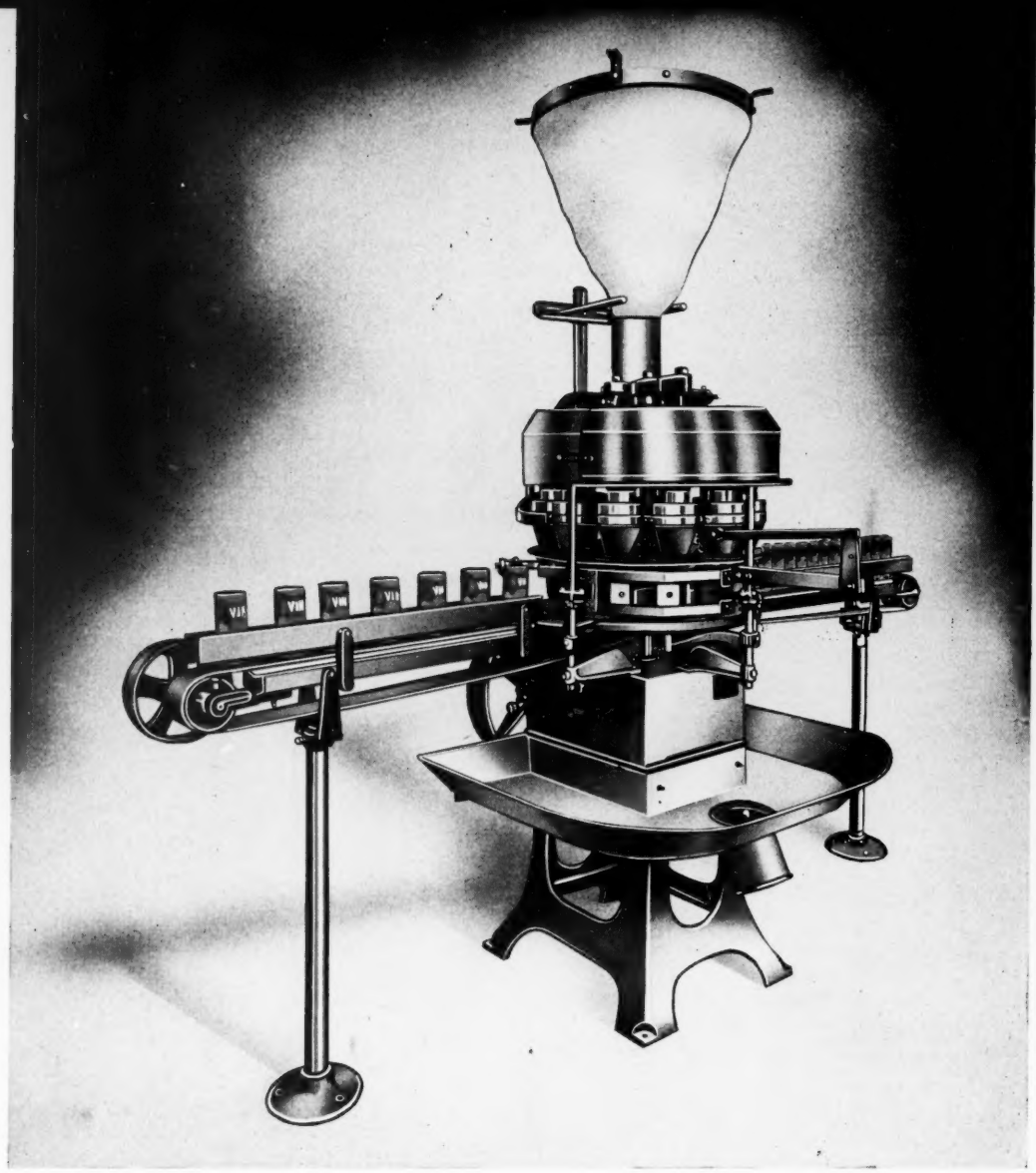
Round
Minimum—1½" Dia. x 2½" high. Maximum—6¾" Dia. x 13-15/16" high.

Rectangular
Minimum—1" x 2" x 2½" high. Maximum—4" x 7" x 13-15/16" high (from bottom score line to top flap).

Maximum Capacity of either round or rectangular cartons not exceed 200 cubic inches.

EQUIPMENT—Equipped for one size. Equipment for additional sizes extra.
SPEED—15 per minute.
ACCURACY—1/16 oz. plus or minus weight specified.
FLOOR SPACE—2'3" x 3'1" x 8'7" high including table (not furnished).
OPERATOR—One operator required.
WEIGHT—Domestic Shipping—750 lbs.
HORSEPOWER—¼ HP motor required. Price of machine includes motor.
ADJUSTABILITY—About 30 minutes required to change from one size to another.

XUM



PNEUMATIC CAN FILLER

Class No. 7111

Designed principally for scouring powders and other material of an abrasive nature. Can Filler is strictly a measuring machine and does not weigh goods.

SPECIFICATIONS

RANGE—Will handle containers of the following sizes:
Minimum—2" diameter x 3" high.
Maximum—3" diameter x 7¼" high.
Cubic capacity of containers must not exceed 50 cubic inches.

EQUIPMENT—Equipped for one size can or container only. Equipment for additional sizes extra.

SPEED—40 to 60 per minute, depending on character of material.

ACCURACY—Guaranteed within ½ oz. plus or minus weight specified.

FLOOR SPACE—3'6" x 8'6" x 7'10" high (Conveyors included).

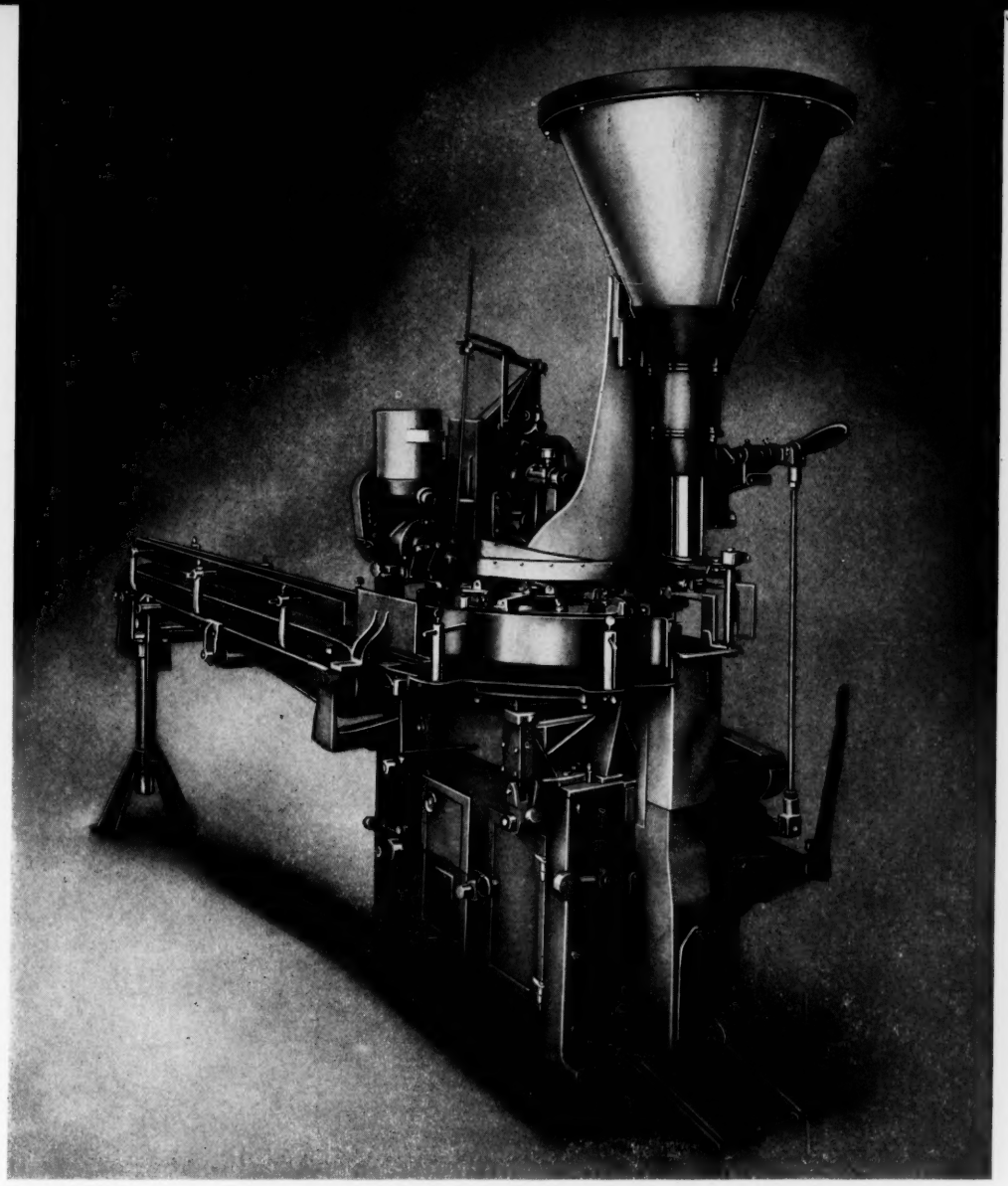
OPERATOR—One operator required.

WEIGHT—Domestic Shipping—1700 lbs.

HORSEPOWER—½ HP required. Price of machine includes motor.

ADJUSTABILITY—Requires about 30 minutes to change from one size container to another.

XUM



PNEUMATIC BAG FLOUR WEIGHER

Class No. 2543

Pneumatic Bag Flour Weighers are made in three sizes. Each machine will handle several sizes of bags within certain ranges.

While primarily designed for the rapid and accurate weighing of flour into cloth and paper bags, some other materials such as insecticides, calcimine, etc., can be handled to advantage.

SPECIFICATIONS

RANGE—From 2 to 7 lbs.

EQUIPMENT—Equipped to handle 2—3½ and 7 lb. bags. Equipment for additional sizes extra.

BAGS—Cloth or paper.

SPEED—14 to 20 bags per minute.

ACCURACY—Within ⅛ oz. plus or minus weight specified.

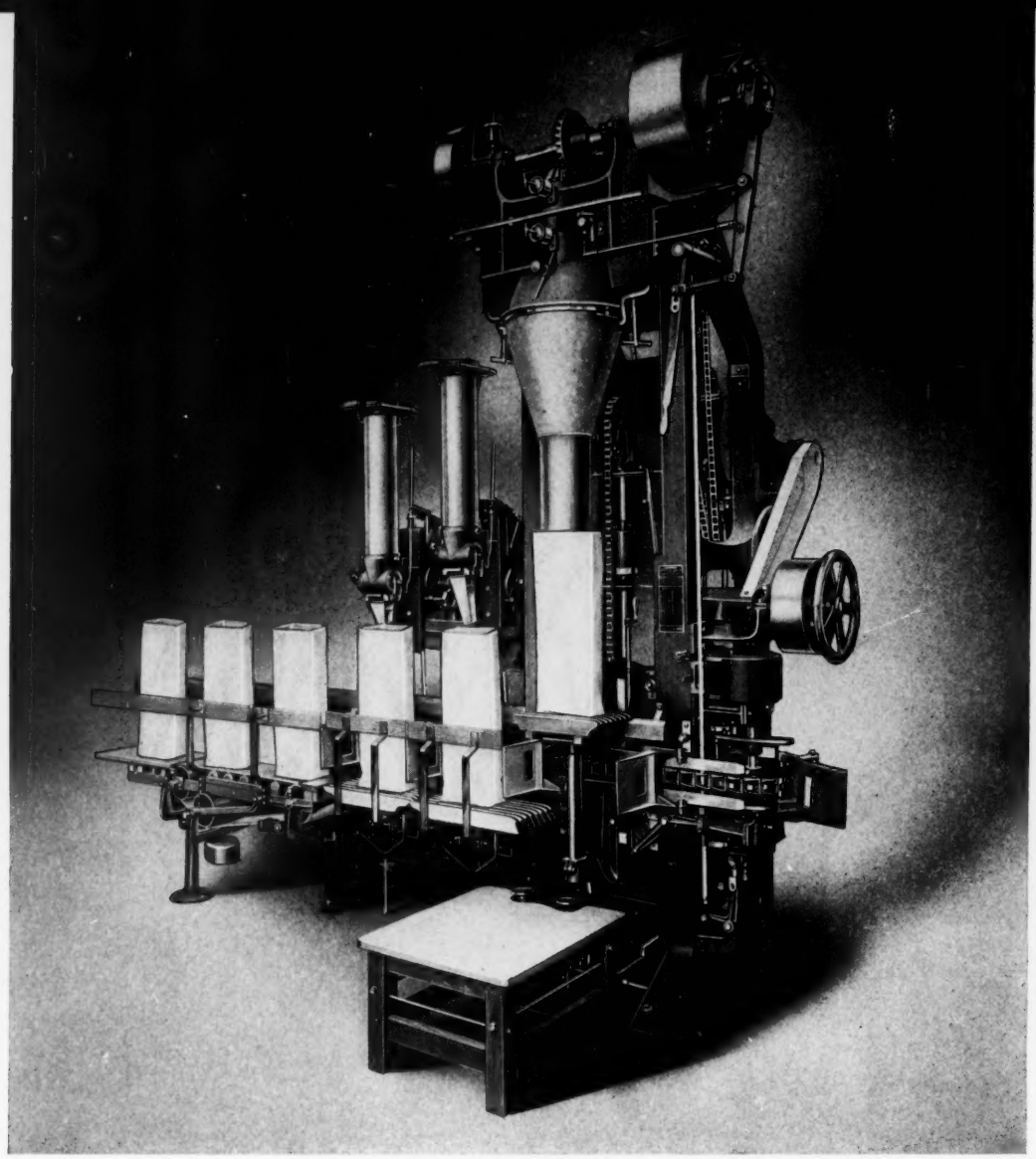
FLOOR SPACE—3'9" x 8'3" x 9'2" high.

OPERATOR—One operator required.

WEIGHT—Domestic Shipping—3100 lbs.

HORSEPOWER—7 HP required. Countershaft Drive only.

ADJUSTABILITY—Requires about 15 minutes to change from one size bag to another.



PNEUMATIC BAG FLOUR WEIGHER

Class No. 2521

Pneumatic Bag Flour Weighing Machines are designed and operated in a manner to assure accurate weights. On our large machines three filling hoppers are used. About seven-eighths of the desired quantity of material measured and placed in the bag at the first hopper. At the second and third hoppers a fine stream of material is dribbled into the bag; this stream is automatically shut off when exact weight of material is deposited.

SPECIFICATIONS

RANGE—12 to 49 lbs.

EQUIPMENT—Equipped to handle 12-24 and 49 lb. bags. Equipment for additional sizes extra.

BAGS—Cloth or paper.

SPEED—
12 bags per minute on 12 lb. size.
10 to 12 bags per minute on 24 lb. size.
6 to 8 bags per minute on 49 lb. size.

ACCURACY—
Within 1/4 oz. plus or minus weight specified on 12 lb. size.
Within 1/2 oz. plus or minus weight specified on 24 lb. size.
Within 1 oz. plus or minus weight specified on 49 lb. size.

FLOOR SPACE—5'10" x 11'5" x 10'4 1/2" high.

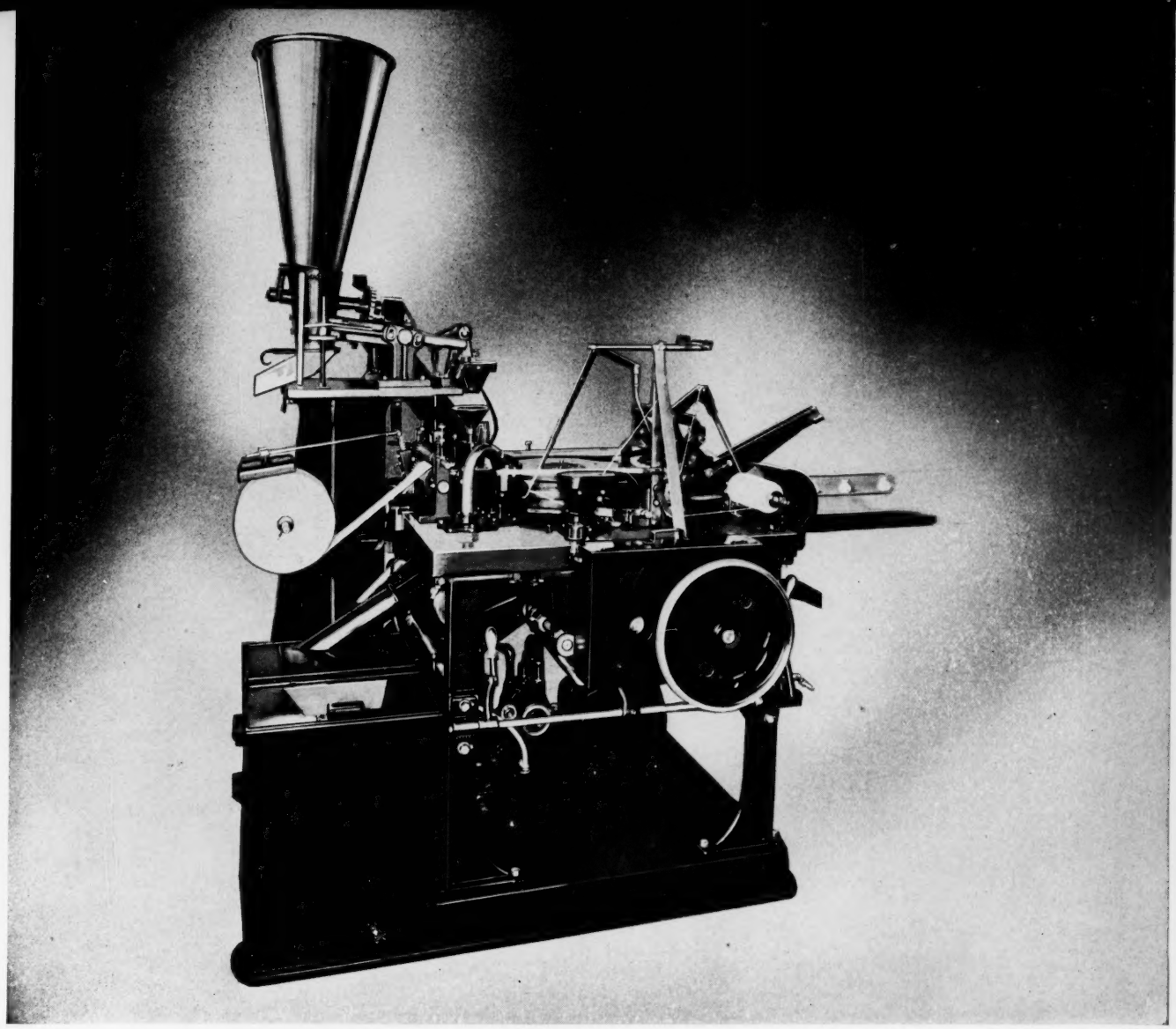
OPERATOR—One operator required.

WEIGHT—Domestic Shipping 7100 lbs.

HORSEPOWER—15 H.P. required. Countershaft Drive only.

ADJUSTABILITY—Requires about 15 minutes to change from one size bag to another.

XUM



PNEUMATIC AUTOMATIC TEA BALL MACHINE

Class No. 9121

The many advantages of the Pneumatic type of tea ball have been recognized by America's best known tea merchants in their choice of the Pneumatic Automatic Tea Ball Machine. Thomas J. Lipton, Inc., Joseph Tetley & Co., Inc., Chase & Sanborn, Wm. S. Scull Co., and many others use batteries of Pneumatic machines to produce their internationally known brands of quality tea balls.

All the various operations — cutting the pure web-like gauze from a self-feeding roll, accurately weighing the tea into the gauze, forming and tying the bag and attaching the tag — are fully automatic and effected with a pleasing surety and smoothness. Most grades of tea, coarse or fine, are accurately and efficiently handled.

SPECIFICATIONS

RANGE—
Minimum—Gauze 4½" square to pack 200 tea balls per lb. of tea.
Maximum—Gauze 7" square to pack 75 tea balls per lb. of tea.
Minimum—Tags ¾" x 1"
Maximum—Tags 1⅛" x 1¼"

EQUIPMENT—Machine adjustable within the above limits without additional equipment. Tag of different shape may require new chute.

SPEED—30 to 35 per minute.

ACCURACY—1/100 oz. plus or minus specified weight.

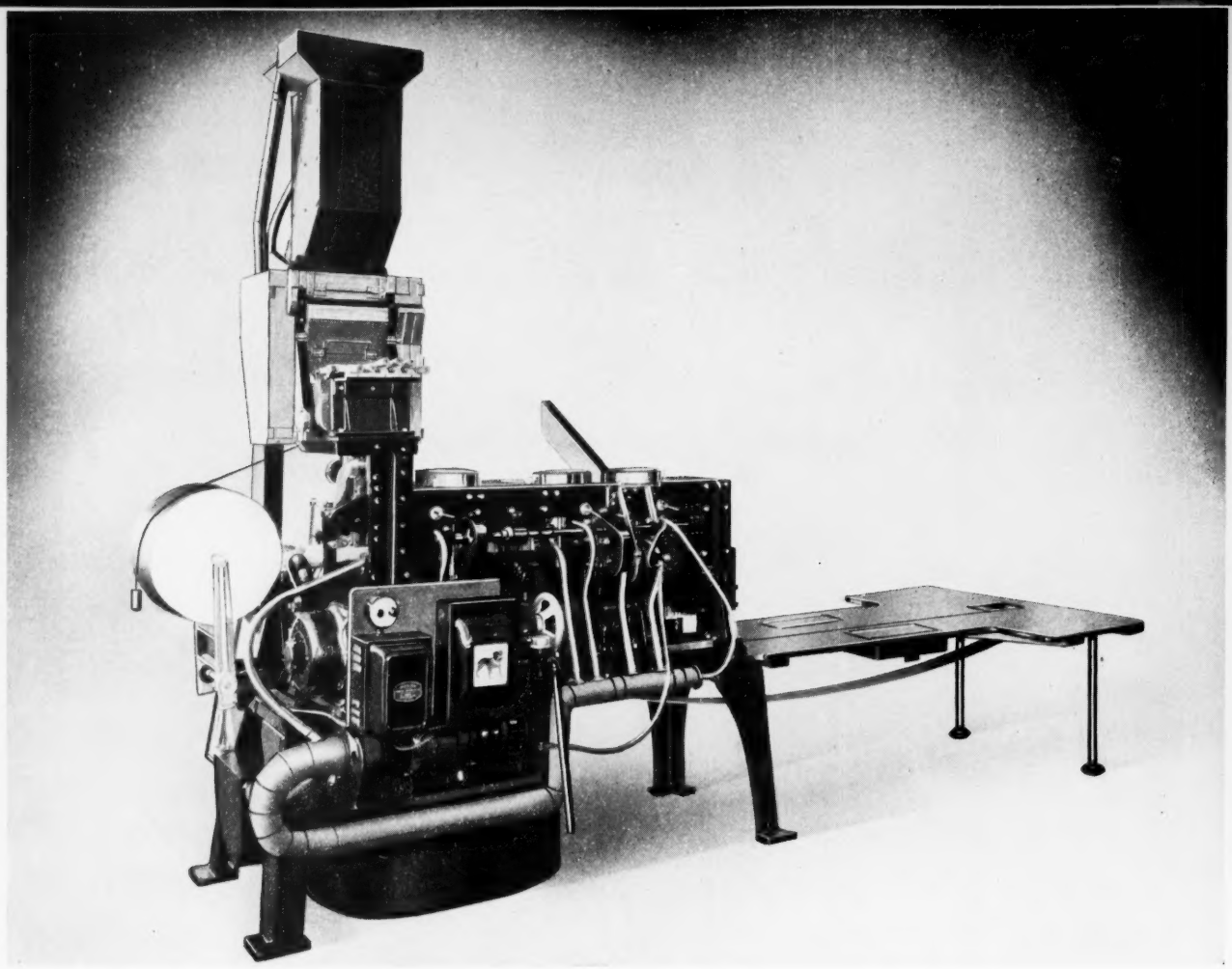
FLOOR SPACE—7'6" x 12'6" x 6'6" high (including machine hopper).

OPERATOR—One operator required to remove finished tea balls and pack in containers.

WEIGHT—Domestic Shipping—3400 lbs.

HORSE-POWER—1 HP motor required. Price of machine includes motor.

ADJUSTMENT—Requires about 15 minutes to change from one size bag to another. About 30 minutes required if different tag is used.



WRIGHT AUTOMATIC TEA BAG MACHINE

Class No. 9122

For those who prefer the pillow type of tea bag, the Wright Automatic Tea Bag Machine is recommended. Developed by the Wright Automatic Tobacco Packing Machine Company of Durham, N. C., this unit is now built, sold, and serviced by the Pneumatic Scale Corporation, Ltd. Salada Tea Company McCormick & Company, Thomas J. Lipton Company, R. B. Hayhoe & Company, and others generally well-known are operating Wright Tea Bag Machines.

All the various operations—cutting the pure, web-like gauze from a self-feeding roll, accurately weighing the tea into the gauze, forming, stitching, and cutting off the bag, and attaching the tag—are fully and continuously automatic. Most grades of tea, coarse or fine, are accurately and efficiently handled.

SPECIFICATIONS

RANGE—Gauze 4¾" wide—one cup bag.
Gauze 5⅛" wide—two cup bag.
Tags—Strips of five or six, 1½" x 5⅜".

EQUIPMENT—Machine readily adjustable to above limits without additional equipment.

SPEED—60 per minute.

ACCURACY—1/100 oz. plus or minus specified weight.

FLOOR SPACE—3'10" x 12'7" x 7'10" high (including machine hopper).

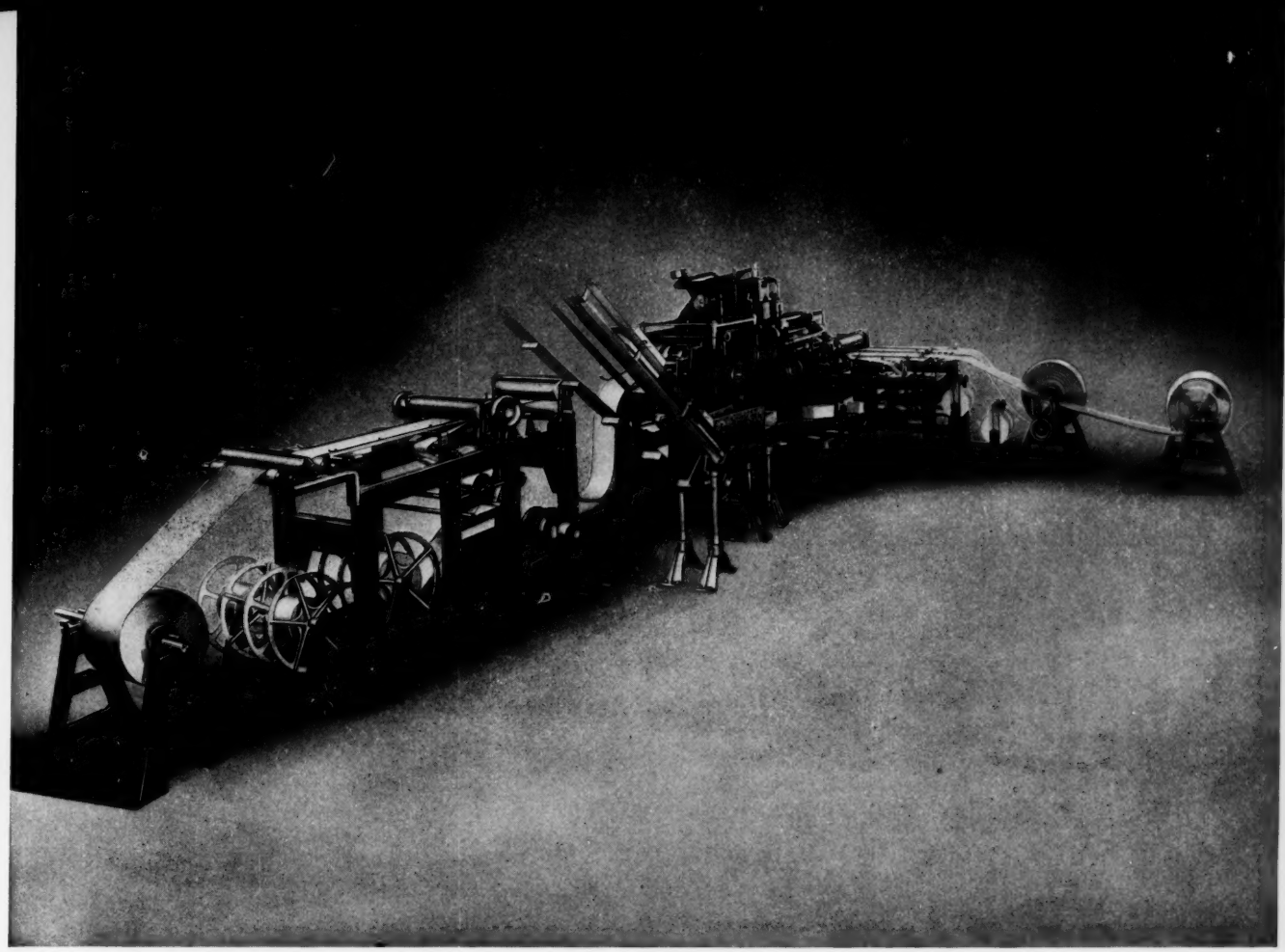
OPERATORS—One required for general supervision and one for packing finished bags in cartons.

WEIGHT—Domestic Shipping 4000 lbs.

HORSEPOWER—1½ HP for machine drive and for vacuum pump. Price of machine includes motor.

ADJUSTMENT—30 minutes to change from one size bag to another, 60 minutes to change bag and tag.

XUM



CLAFF AUTOMATIC DOUBLE END PROCESS BOX MAKING MACHINE

Class No. 9161

A complete box plant combined in one machine. All the usual semi-automatic intermediate operations eliminated. Takes board and paper in rolls and turns out finished boxes or tops. No rehandling and no defective pieces. All the operations of covering, creasing, blanking, etc., to turning out the finished box is a continuous automatic operation producing an unusually strong box with a definite saving in material, time and labor.

SPECIFICATIONS

RANGE—Will handle boxes of the following sizes:—
Minimum—¾" deep, 3" wide, 8" long.
Maximum—5" deep, 8" wide, 14" long.
(Length of box must be twice its depth plus 1")
Minimum and Maximum sizes cannot be handled on the same machine.

EQUIPMENT—Equipped for one size box. Equipment for additional sizes extra.

CARDBOARD—Fed from rolls (three required).

COVERING PAPER—Fed from rolls (three or four rolls required according to type of box).

SPEED—35 to 38 box bodies or lids per minute.

FLOOR SPACE—31'8" x 22'0".

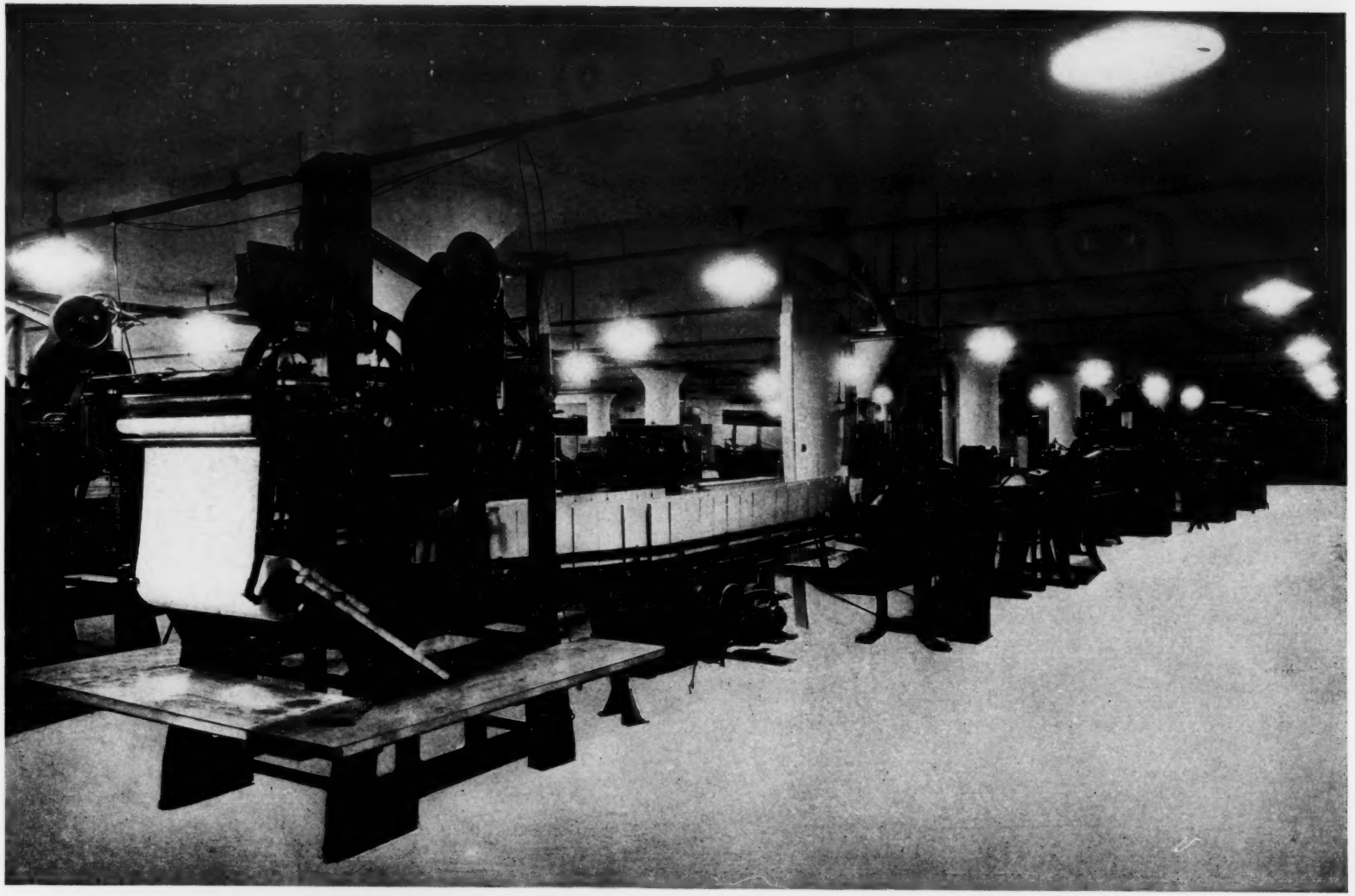
OPERATOR—One operator and helper required.

WEIGHT—Domestic Shipping—18,000 lbs.

DRIVE—2 HP required. Price of machine includes motor.

ADJUSTABILITY—Requires about 60 minutes to change from one size box to another.

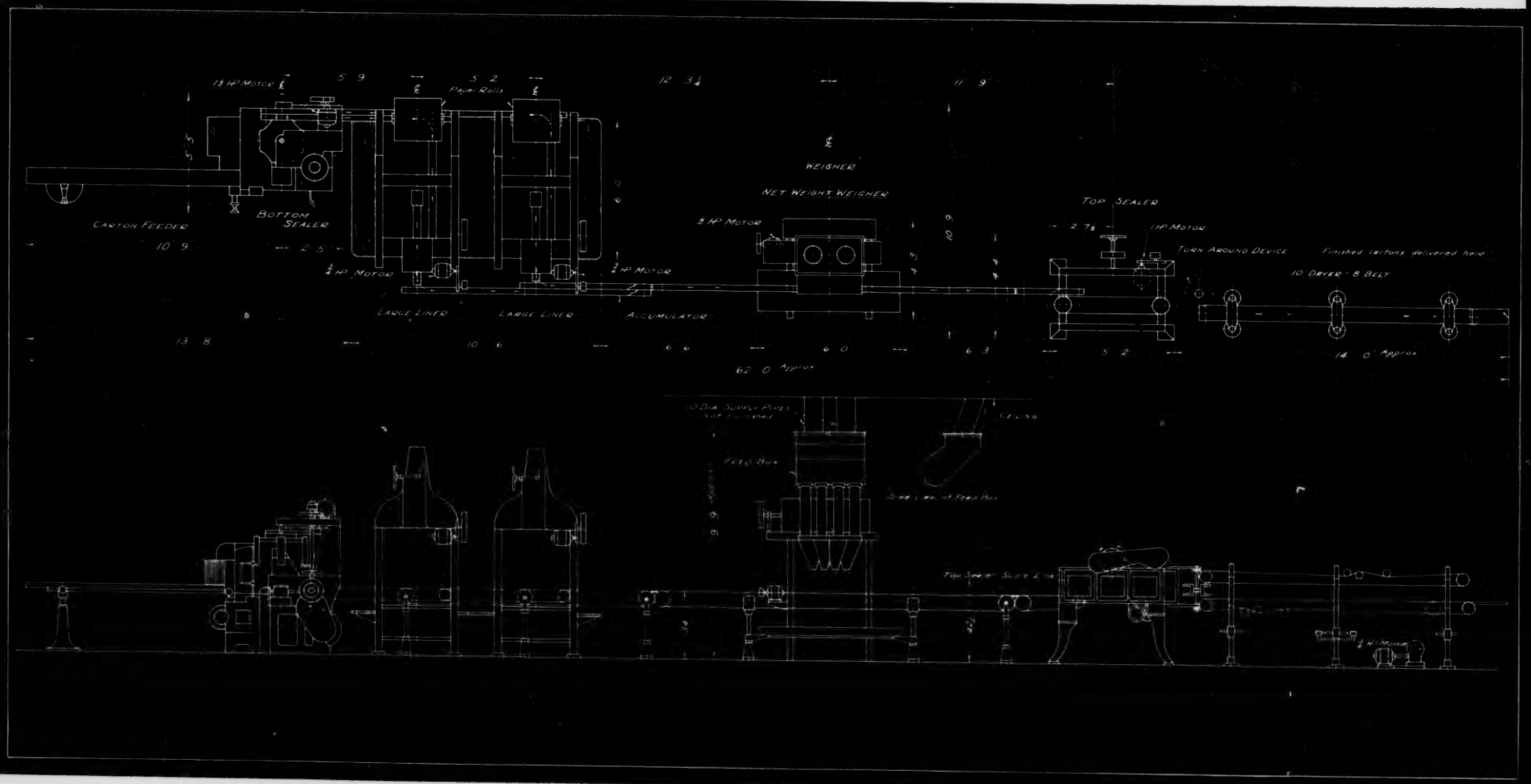
XUM



A battery of several lines of Pneumatic Scale Corporation machines, consisting of Automatic Carton Feeders, Bottom Sealers, Lining Machines, Weighing and Filling Machines, Top Sealing and Wrapping Machines, operating in the plant of the Jewel Tea Co., Barrington, Illinois.

XUM

XUM



DRAWING SHOWING TYPICAL FLOOR PLAN OF A PNEUMATIC PACKAGING UNIT

PNEUMATIC SCALE CORPORATION, LTD., Norfolk Downs, (Quincy) Mass.

Seventy Different Types of Standard Packaging Machines

Below are listed some of the 70 different types of standard packaging machines manufactured by the Pneumatic Scale Corporation for every packaging purpose, dry or liquid:

For Cartons

Carton Feeders

Bottom Sealers

Lining Machines

Coupon Devices

Filling and Weighing Machines

Top Sealers

Dating Devices

Tight Wrappers

For Cans, Tins, Bottles Jars, etc.

Weighers and Fillers

Fillers

Cappers

Labelers

For Sacks and Bags

Fillers and Weighers

For Bottles, Cans and Other Containers

Combined Vacuum Cleaning and Filling Machines

Vacuum Filling Machines

Bottle and Can Capping Machines

Corking Devices

Volumetric Powder Fillers

For Other Purposes

Claff Automatic Box Making Machines

Automatic Tea Ball Machines

Automatic Butter Cutting and Wrapping Machines

Automatic Coin Handling Machines

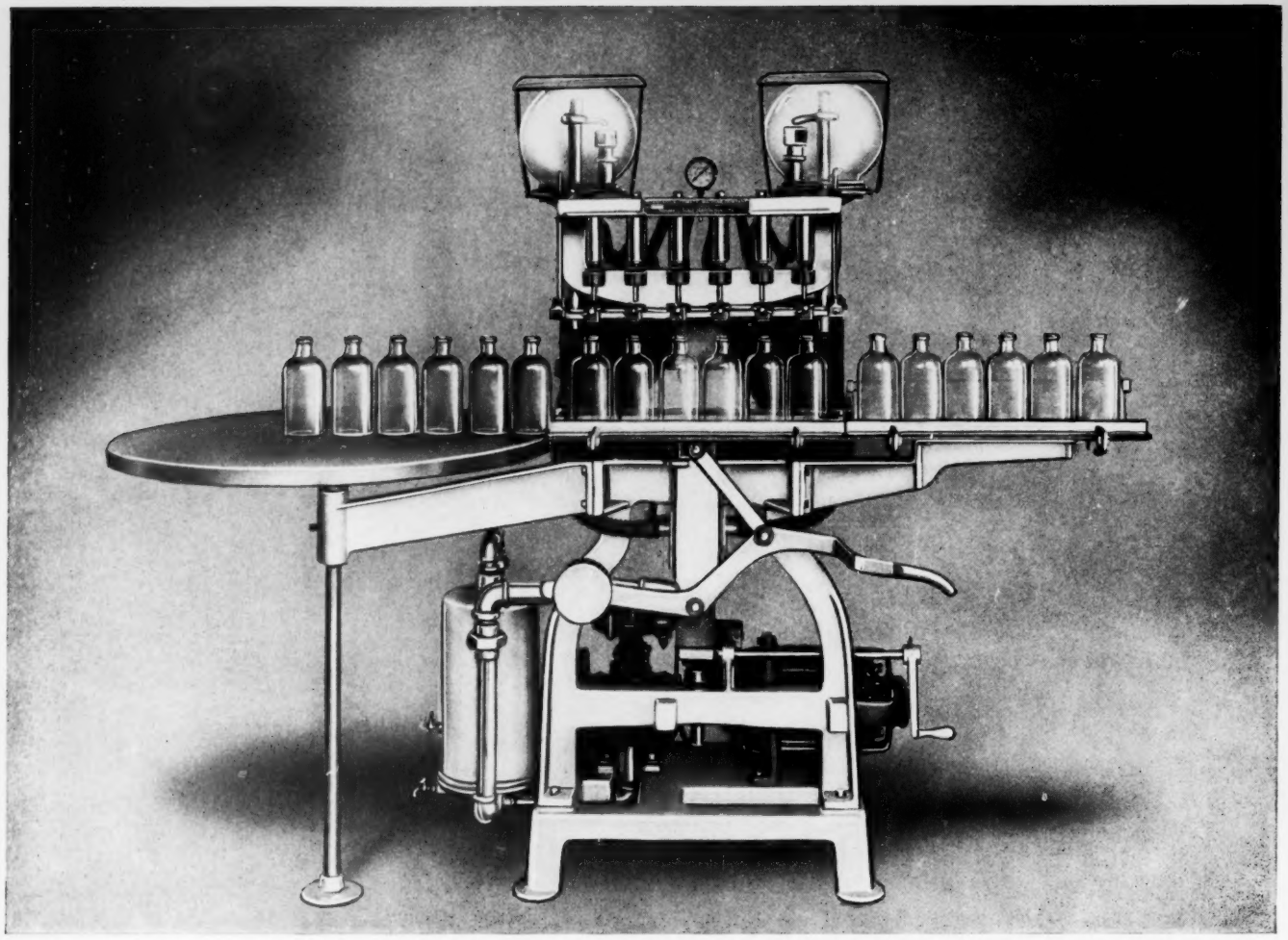
XUM

AUTOMATIC MACHINERY FOR LIQUID FILLING

VACUUM FILLING
VACUUM CLEANING
SCREW CAPPING
LABELING

PNEUMATIC SCALE CORPORATION, LTD.
NORFOLK DOWNS · (QUINCY) · MASS.

XUM



SAMCO JR. VACUUM FILLING MACHINE

Class No. 7125

A sturdy, rugged vacuum filling machine, particularly useful where a number of sizes of bottles and a wide variety of materials are handled. Changes from one size container to another are simple, requiring from 10 to 25 minutes time.

SPECIFICATIONS

RANGE—Will fill practically all types of bottles (regular or sprinkler top finish) and cans from 1 oz. to 1 gal. sizes.

EQUIPMENT—Price includes equipment for one size container. Equipment for additional sizes extra.

SPEED—Rated at 30 filled containers per minute.

ACCURACY—Will fill every container to the same predetermined level.

ADJUSTABILITY—Machine is flexible and adjustable to different sizes within reasonable range. Changes from one size to another require from 10 to 25 minutes time.

FLOOR SPACE—3' x 5' x 6' high.

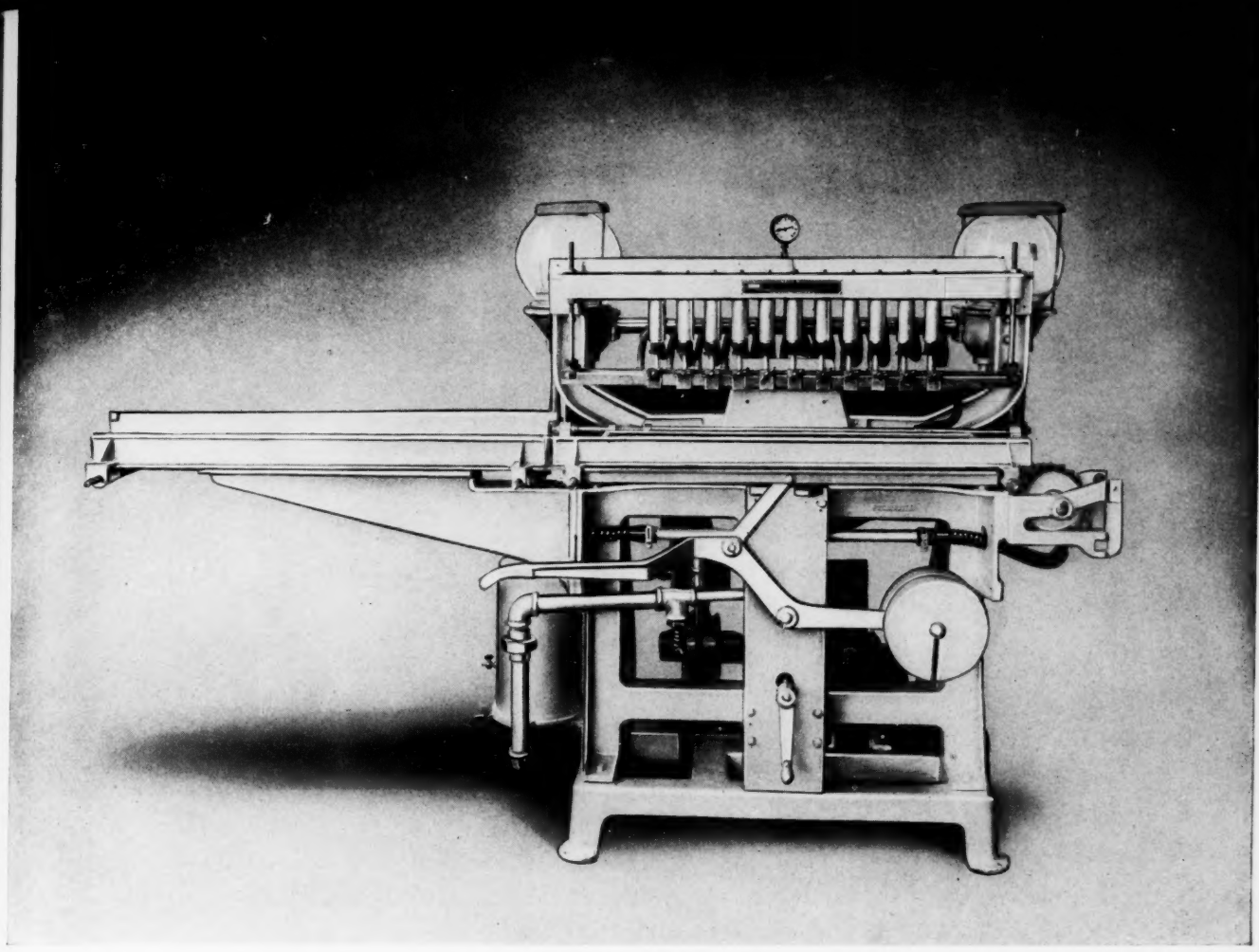
WEIGHT—Domestic Shipping—1200 lbs.

MOTOR DRIVE—¾ HP motor for Vacuum Pump drive furnished.

OPERATOR—Machine is semi-automatic, one operator required to feed empty containers and remove filled containers.

ROTARY TABLE—For collecting the filled containers; can be furnished as extra equipment at additional cost.

XUM



ENLARGED SAMCO VACUUM FILLING MACHINE

Class No. 7122

While this machine was specially designed to fill eleven quarts or six gallon jugs at a time and give the generally desired speed on these sizes, this same machine will fill smaller containers with equal facility, and at proportionately greater speed.

It can be used for small and medium size bottles or cans in the general run, then be shifted to runs on the larger sizes with no more trouble than comes with the ordinary machine changes from size to size.

The filling parts are made of a material to withstand the corrosive action of the products to be filled. . . . For filling vinegar, ketchup, and pharmaceutical products.

SPECIFICATIONS

RANGE—Will fill practically all types of bottles (regular or sprinkler top finish) and cans from 1 oz. to 1 gal. sizes.

EQUIPMENT—Price includes equipment for one size container. Equipment for additional sizes extra.

SPEED—Rated at 40 to 50 filled containers per minute, according to size of container and character of material to be filled.

ACCURACY—Will fill every container to the same predetermined level.

ADJUSTABILITY—Machine is flexible and adjustable to different sizes within reasonable range. Changes from one size to another require from 20 to 40 minutes.

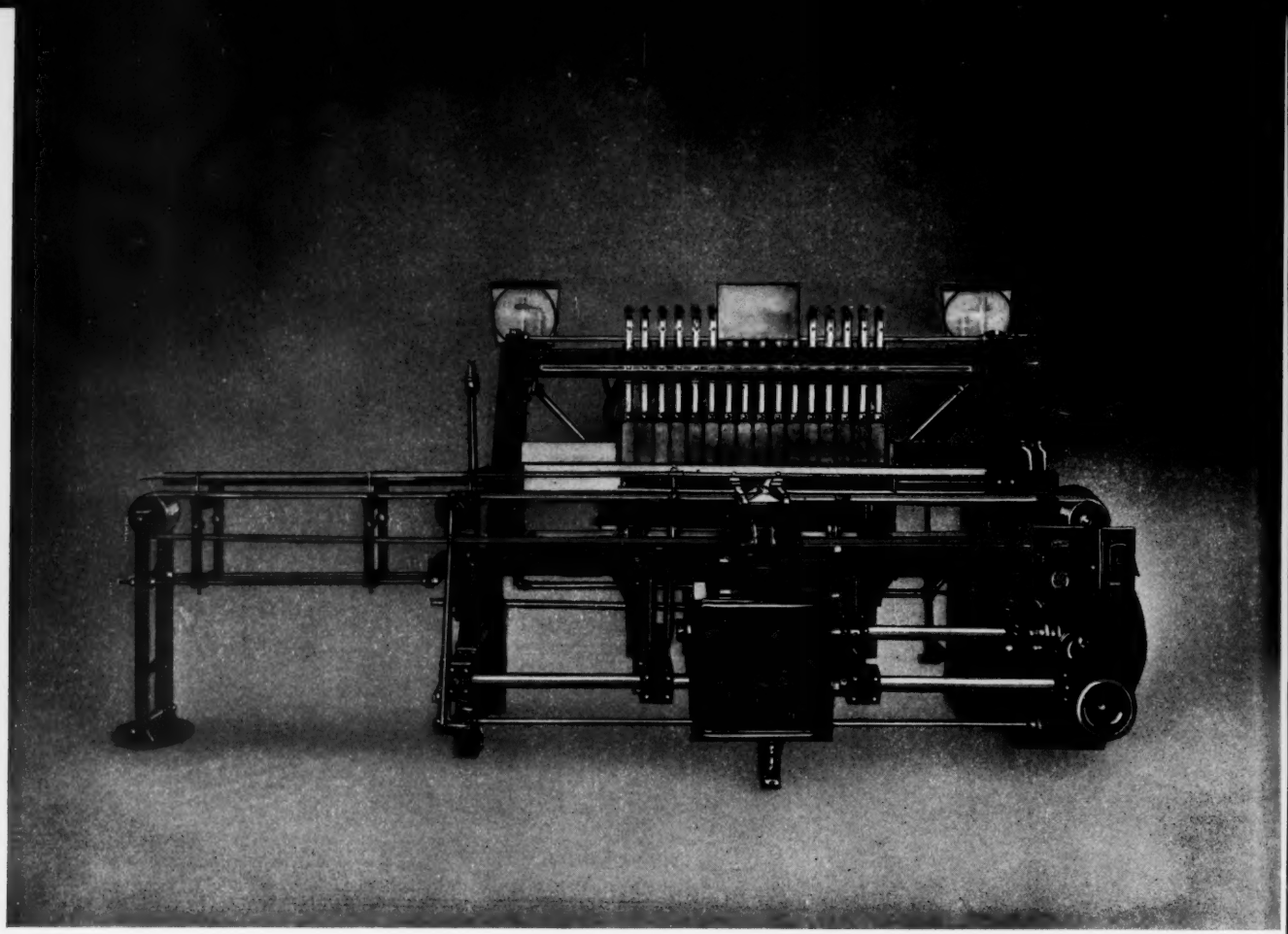
FLOOR SPACE—3' x 7' x 6' high.

WEIGHT—Domestic shipping—1900 lbs.

MOTOR DRIVE—¾ HP motor required to drive Vacuum Pump. This motor furnished with machine.

OPERATOR—Machine is semi-automatic, one operator required to feed empty containers and remove filled containers.

XUM



FULLY AUTOMATIC VACUUM FILLING MACHINE

Class No. 7124

Where steady, long runs and positive, dependable production schedules must be maintained, our Fully Automatic Vacuum Filling Machine is recommended.

SPECIFICATIONS

RANGE—Will fill practically all types of bottles (regular and sprinkler top finish) and cans from 1 oz. to 1 qt. sizes.

EQUIPMENT—Price includes equipment for one size container. Equipment for additional sizes extra.

SPEED—50 to 100 per minute, depending on—
1. Container and product to be filled.
2. Number of filling heads which vary from 12 to 20.

ACCURACY—Will fill every container to the same predetermined level.

ADJUSTABILITY—Machine is flexible and adjustable to different sizes within reasonable range. Changes from one size to another require from 30 to 45 minutes.

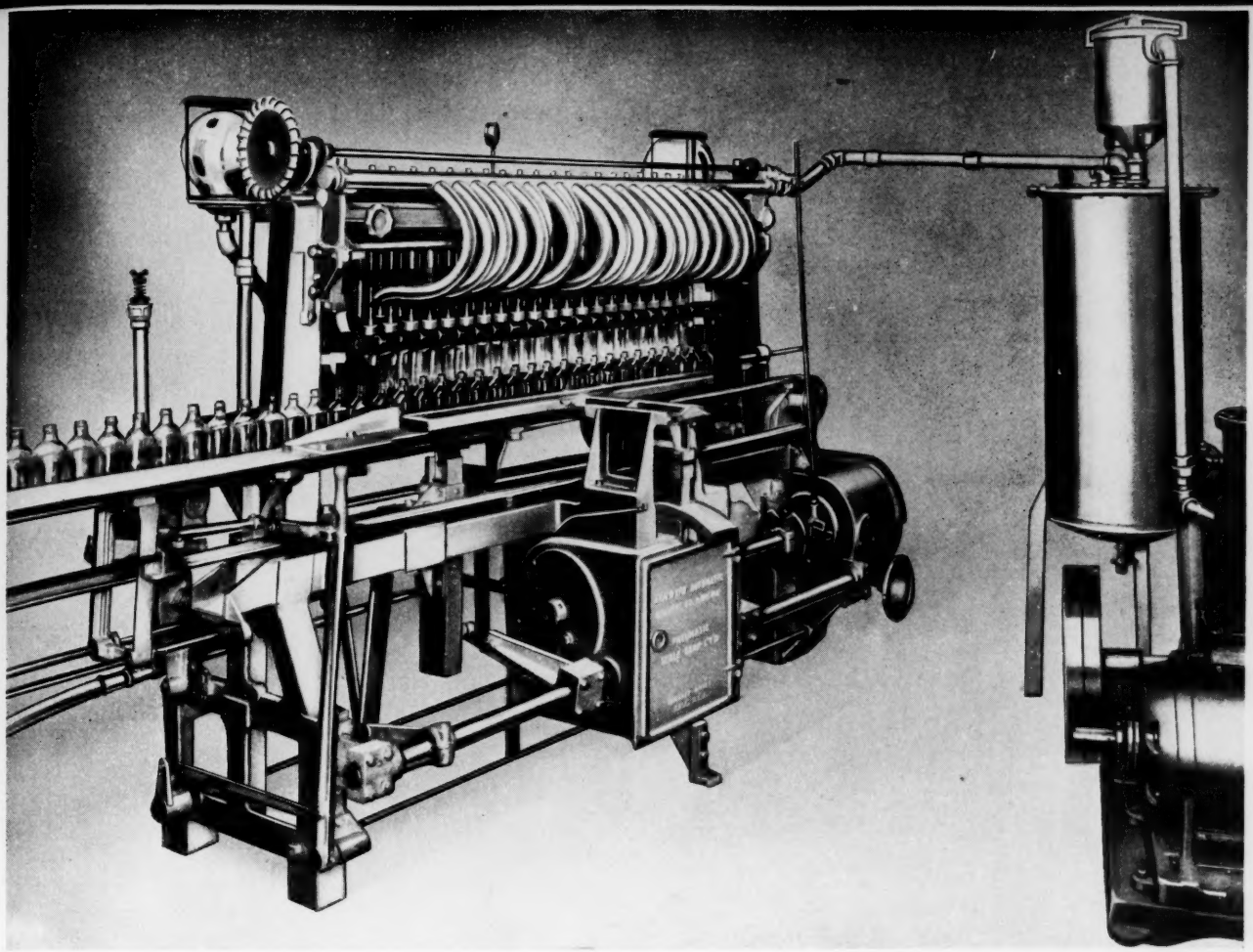
FLOOR SPACE—4' x 12' x 6' high.

WEIGHT—Domestic Shipping—4100 Lbs.

MOTOR DRIVE—½ HP motor required for machine drive. 1 HP motor required to drive Vacuum Pump. These motors are furnished with machine.

OPERATOR—Machine is fully automatic, one operator required to feed bottles.

XUM



FULLY AUTOMATIC COMBINED VACUUM CLEANER AND FILLER

Class No. 7126

Combined for the first time, the two major operations of cleaning and filling, in one straight-line machine. This new process of dry vacuum cleaning is revolutionary, replacing the cumbersome old methods of washing and rinsing.

SPECIFICATIONS

RANGE—Will clean and fill practically all types of bottles ranging from 1 ounce to 1 quart sizes.

EQUIPMENT—Price includes equipment for one size bottle. Equipment for additional sizes is extra.

SPEED—50 to 100 per minute, depending on
(1) Bottle and Product to be filled.
(2) Number of cleaning and filling heads, which may vary from 12 to 20

ACCURACY—Will fill every container to the same predetermined level. Guaranteed without drip.

ADJUSTABILITY—Machine is flexible and adjustable to different sizes within reasonable range.

FLOOR SPACE—4′ x 16′ x 6′ high.

WEIGHT—Domestic Shipping 5000 lbs.

MOTOR DRIVE—½ HP motor required for machine drive. 1 HP motor required for Vacuum Filler Pump. 5 HP motor required for Vacuum Cleaner Pump. These motors are furnished.

OPERATOR—Machine is fully automatic, one operator required to feed bottles.



PNEU-ROTARY AUTOMATIC VACUUM FILLING MACHINE

Class No. 7127

A high speed vacuum filler of the Rotary Type; the culmination of eight years of engineering effort to eliminate the well-known faults of rotary vacuum filling machines. In this machine are combined for the first time, rotary operation, absolute non-drip, and accurate filling at high speeds.

SPECIFICATIONS

RANGE—Will fill practically all types of bottles and cans from 1 ounce to 1 quart sizes.

EQUIPMENT—Price includes equipment for one size container. Equipment for additional sizes extra.

SPEED—50 to 120 per minute, depending on container and product to be filled.

ACCURACY—Will fill every container to the same predetermined level. Guaranteed without drip.

ADJUSTABILITY—Machine is flexible and adjustable to different sizes within reasonable range.

FLOOR SPACE—3'7" x 8'4" x 6' high.

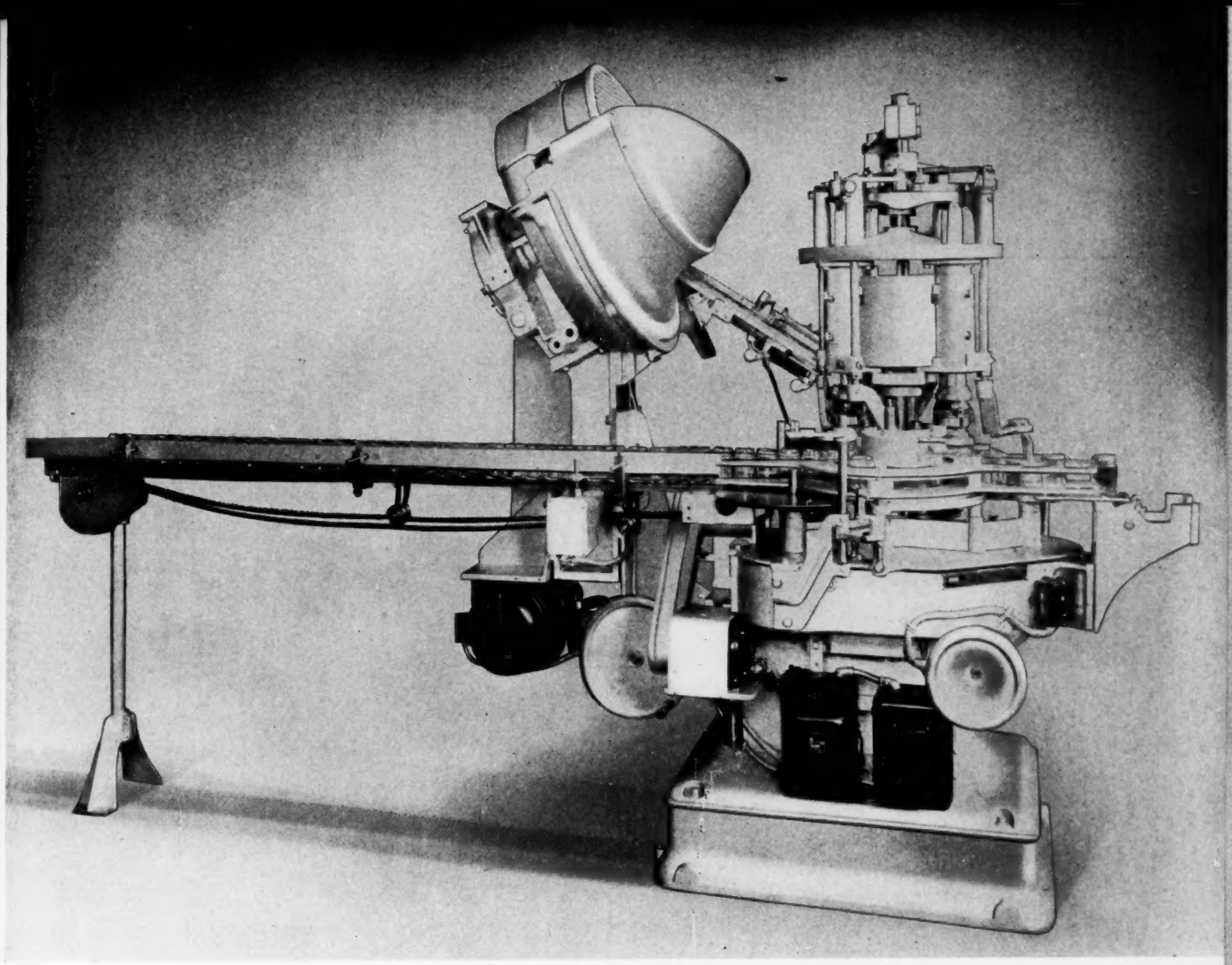
WEIGHT—Shipping 3500 lbs.

MOTOR DRIVE—½ HP motor required for machine drive. 1 HP motor required for Vacuum Pump drive. These motors are furnished.

OPERATOR—Machine is fully automatic, one operator required to feed bottles.

SPECIAL—A Reeves Variable Speed Transmission can be furnished as extra equipment.

XUM



PNEU-ROTARY SCREW CAPPING MACHINE

Modern changes in cap and glass design demand a screw capping machine combining speed and flexibility sufficiently broad to handle a great variety of shapes and sizes with a minimum of accessories, time and effort when making changes.

Our Pneu-Rotary Screw Capping Machine is designed to meet these exacting modern conditions. Fourteen years of practical experience building screw capping equipment is reflected in this modern capping machine which establishes a new high standard of screw capping operation. With this machine "guess-work" and uncertainty, usually accompanying screw capping operations, are eliminated.

SPECIFICATIONS

RANGE—Will handle any style of threadea or lug type of turn-on closure, and a variety of sizes and shapes of containers.

EQUIPMENT—Price includes equipment for one size container. Equipment for additional sizes extra.

SPEED—50 to 120 per minute.

ADJUSTABILITY—Machines are flexible and easily adjustable to different sizes of caps and containers.

FLOOR SPACE—(Cap Feed incorporated as an integral part of the machine proper) 3'5" x 9'0" x 7'6" high.

STANDARD CONVEYOR—6'0" intake.

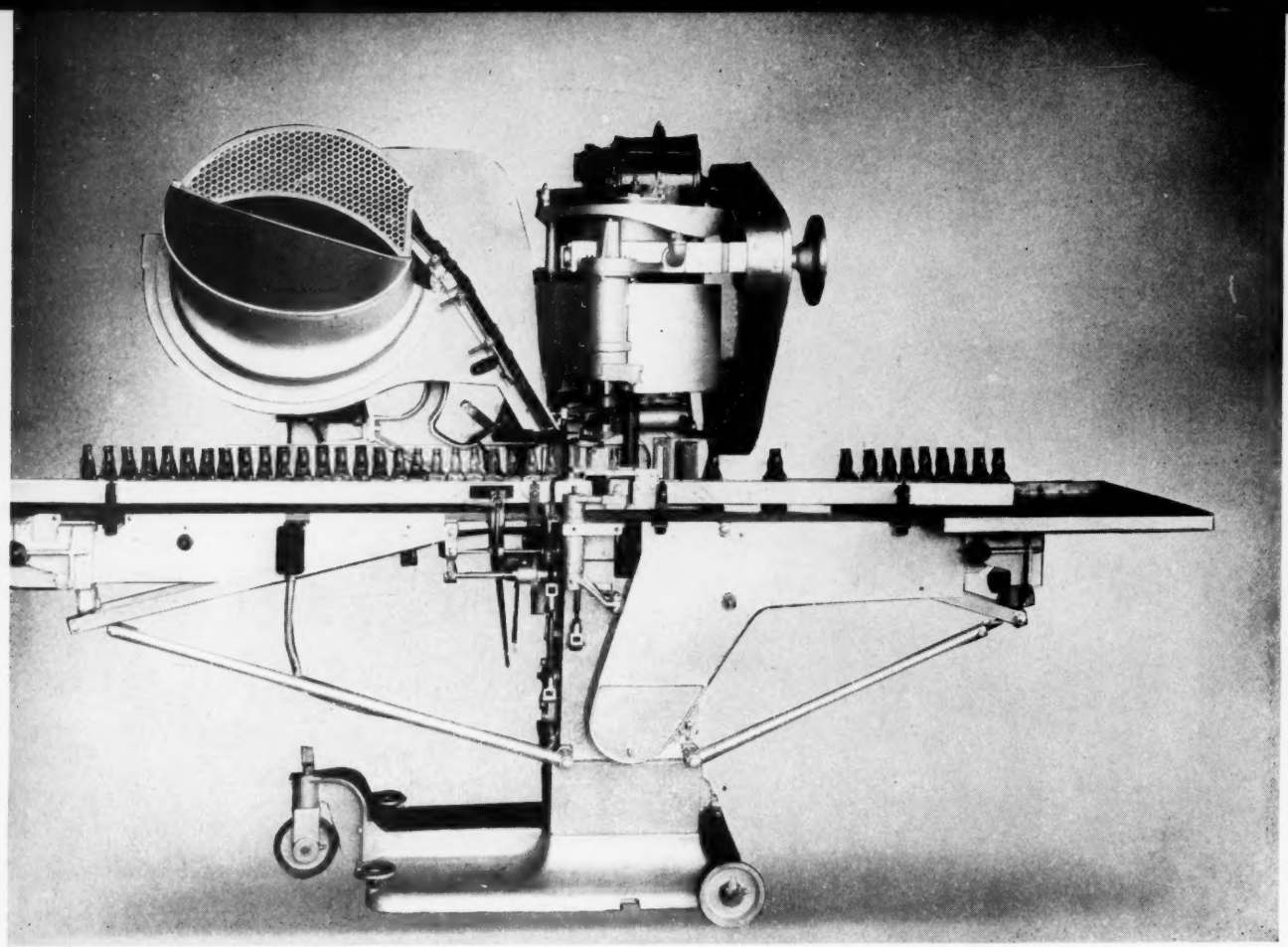
WEIGHT—Domestic Shipping—3800 lbs.

MOTOR DRIVE—1 HP 1750 RPM Motor for machine proper. ½ HP 1200 RPM Motor for intake conveyor.

OPERATOR—Machines are fully automatic. Attendant will occasionally refill cap feed hopper.

SPECIAL—A Reeves Variable Speed Driving Transmission can be furnished as extra equipment.

XUM



SINGLE HEAD AUTOMATIC SCREW CAPPING MACHINE

Class No. 3323

Our Single Head Screw Capper is of the same fine construction as our Pneu-Rotary Capper and equipped with the same super-sensitive type capping head.

The Automatic Cap Feeds, shown with the Single Head and Pneu-Rotary Cappers contain an easily accessible hopper into which the caps can be dumped in quantities. It is impossible to jam the feed hoppers. They are easily and quickly adjustable; all working parts are accessible and within easy reach from the floor.

Standard Vacuum Filling Units can be operated with either of these Capping Machines accomplishing the filling, cap feeding and cap turning in a continuous process without employing a single hand operation.

SPECIFICATIONS

RANGE—Will handle any type of turn-on closure and a variety of sizes and shapes of containers.

EQUIPMENT—Price includes equipment for one size container. Equipment for additional sizes extra.

SPEED—Rated at 40 per minute.

ADJUSTABILITY—Machine is flexible and adjustable to different sizes within reasonable range. Changes from one size to another require from 10 to 30 minutes.

FLOOR SPACE—(Including Automatic Cap Feed)—3½′ x 8½′ x 6½′ high.

CONVEYORS—4′4″ intake—2′10″ delivery.

WEIGHT—Domestic Shipping—3200 lbs.

MOTOR DRIVE—¾ HP motor required. Price of machine includes motor.

OPERATOR—Capping Machine is fully automatic in operation. Attendant only required to occasionally refill the cap feed hopper.

SPECIAL EQUIPMENT—Machine can be mounted on casters if desired.

XUM



ANOTHER NAME OF NATIONAL FAME . .

A. STEIN & COMPANY

Manufacturers of Paris Garters, Suspenders and Belts for Men,
and Hickory Products for Women and Children,

Use raised printing as an integral
part of their merchandising plan.

●

RAISED PRINTING ON THE BOX WRAPPER

Enriches the appearance of the package, reflects the quality of your product and increases its sales value.

We will be glad to furnish samples and suggestions for raised printing effects on your Labels, Box Wrappers and Displays.

•

WOOD, NATHAN & VIRKUS CO.
Incorporated
Manufacturers of "Virkotype"
Raised Printing Compounds and Inks
112 CHARLTON ST., NEW YORK, N. Y.
608 SO. DEARBORN ST., CHICAGO, ILL.

•

HANOGRAF CORPORATION
Raised Printing Specialists
Printers and Designers
22 THAMES ST., NEW YORK, N. Y.

•

Millbridge

QUALITY

Box Papers

SPRINGFIELD GLAZED PAPER COMPANY

SPRINGFIELD, MASSACHUSETTS

NEW YORK
6 East 45th Street
MUrray Hill 2-6221

SAN FRANCISCO
ROBERT C. BISHOP
461 Market Street - Sutter 3544

XUM

SPRINGFIELD METALLICS

BOX COVERING PAPERS

Gold

Platinum

Silver

Plain or Embossed

for the

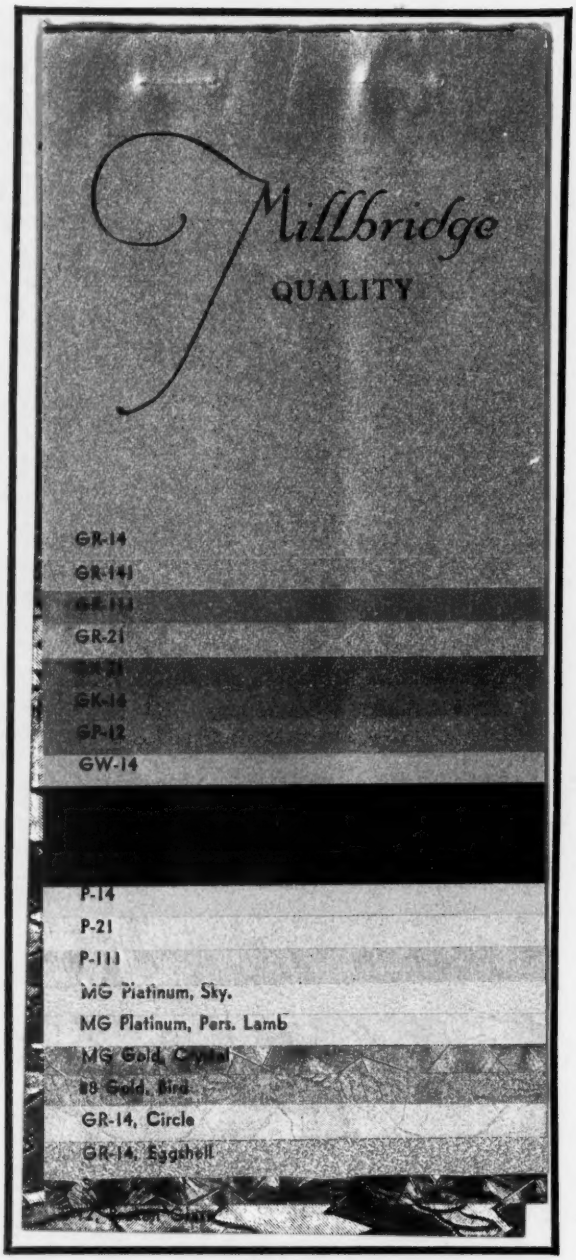
Box Maker

who desires

Dependable Quality

at

Moderate Cost



Lift Swatch

Manufacturers

of

Plain or Embossed

Friction

Plate

Flint

Mica

Waterproof

Cover Papers

Duplex Papers

also

Special Items

To your

Specifications

Suppliers to the Box Maker Since 1894

SPRINGFIELD GLAZED PAPER COMPANY

SPRINGFIELD, MASSACHUSETTS

This insert is Millbridge CIS 10-point Platinum

XUM



MYRACOL BOTTLE WRAPS

Wraps for wine and liquor bottles serve several purposes. They give valuable protection—keeping the label in perfect condition and preventing dust from marring the fine appearance of the bottle.

Wraps make a good impression on the purchaser. Dealers like to display wrapped bottles. For gifts—wraps serve to carry out the package idea. Brand identification can be made stronger with imprinted wraps.

NRA MEMBER U.S. WE DO OUR PART

Pioneer Paper Stock Company—leading producers of wraps for other uses—now offers a wide range of bottle wraps for liquor and wine bottles—plain or printed—in many colors and grades of paper.

Bottle wraps are only one member of the big Pioneer line of Myracol packing products—including shreds, wraps, caps, liners and fringes for fruit—Excelsior for display packing—pads, tissue, crepe wadding, etc., for general packing. Write for complete data.

PACKING MATERIALS DIVISION

PIONEER PAPER STOCK COMPANY, 422 WEST OHIO STREET, CHICAGO

Myracol

QUALITY WRAPS FOR WINE AND LIQUOR BOTTLES



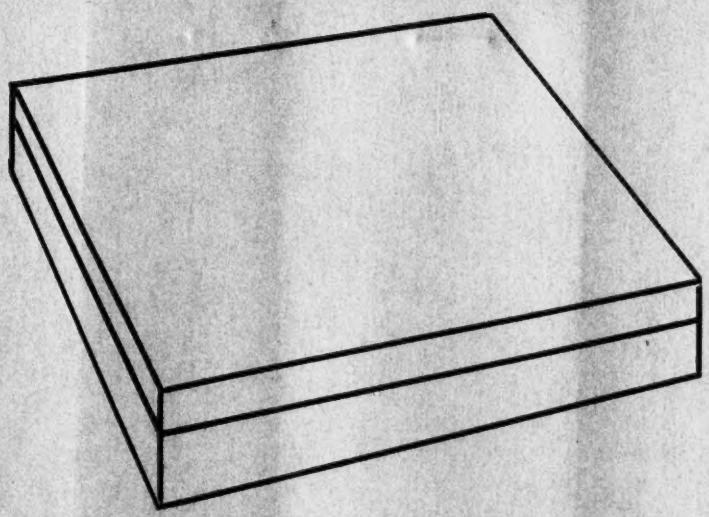
ORNAMENTAL WOOD PACKAGING COMPANY

43 East Ohio Street **Chicago, Illinois**

FACTORIES: NEW LONDON, WIS. ROCKFORD, ILL.

MORE THAN 400 PAPERS

are STOCKED by MIDDLESEX FOR IMMEDIATE DELIVERY



The MODE Group of Modern Packaging and Advertising Papers, Manufactured and Stocked by MIDDLESEX, includes Brilliant Metallic Papers, Colored Glazed and Plated, Mica Finish, Embossed, Waterproof, Foils, and a wide variety of Special Papers.

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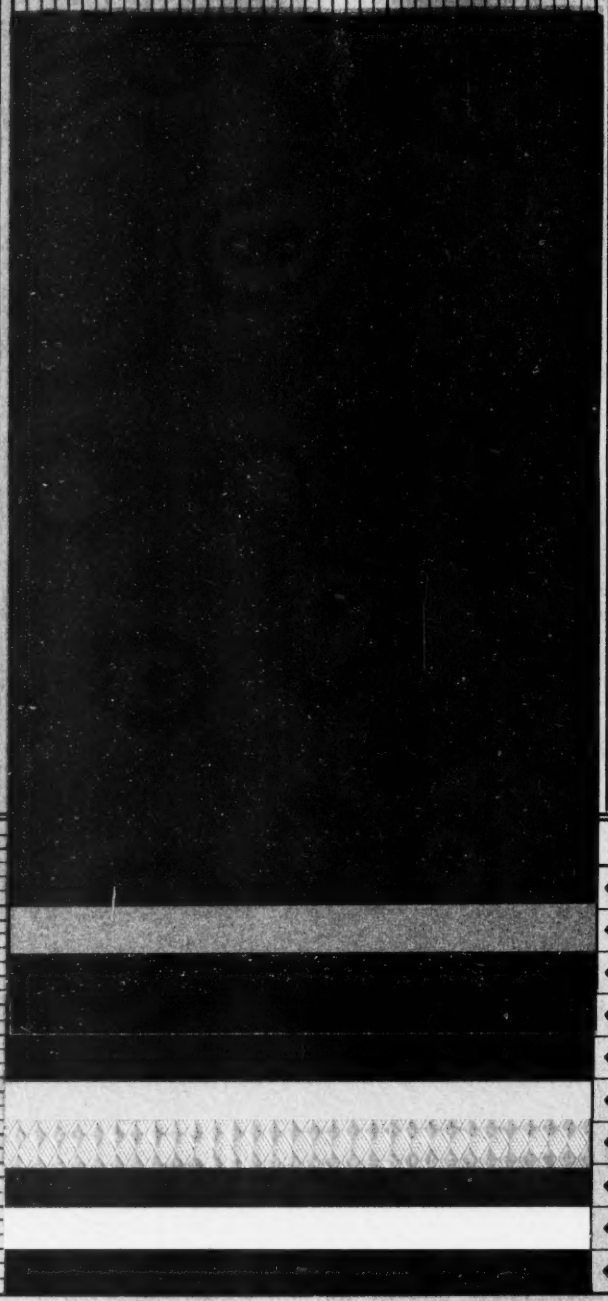
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111 PUTNAM AVENUE
CAMBRIDGE, MASS.



MIDDLESEX
Presents for 1934
NEW
COLORS • EMBOSSINGS
EFFECTS

Your name on the card below will bring samples of these beautiful new STYLE-APPEAL PAPERS

Description	See Book No.
VANI-MODE, Crystal Design.	In Preparation
LACQUER Gold, Platinum, Tints. Plain and Embossed.	43
METAL-MODE Veneer Design. Gold, Silver and Colored Metals.	38
FOIL, Plain and Embossed.	38
GALA-MODE Double and Triple-Tone Embossed.	36
VANI-MODE, Lace Design.	35
METAL-MODE GLASSINE Plain and Embossed.	43
Colored FRICTION GLAZED.	34
Two-Tone STANDARD EMBOSSED.	42
Black DIAGONAL DESIGN.	42

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CAMBRIDGE, MASS.

Gentlemen:

Please put our name on your mailing list.

Send us sample books of the following lines _____

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Also working sample sheets of _____

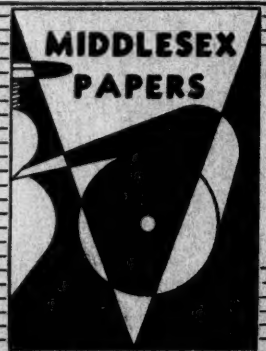
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COMPANY _____

ADDRESS _____

MIDDLESEX
PRODUCTS COMPANY
A MODERN MILL
CAMBRIDGE :: MASSACHUSETTS
Chicago: 308 W. Washington St.



This Insert Printed On No. 417C2S Folding Boxboard

XUM



NEW PACKAGING IDEAS

Above are shown a few of the many new containers embodying original ideas, which were created and produced by us in 1933.

The cotton dispenser cans, which were developed for one of the leading drug houses, are the last word in containers for the merchandising and dispensing of cotton for surgical purposes.

The three oval fibre cans are used as containers for talcum and other similar products. Furnished with any of several types of dredges, either in plain tin, nickeled tin, coated or lacquered.

The tiny drums are used as toys as well as advertising novelties and will do everything a regular snare drum will do. They can be furnished in many sizes.

These are just a few specimens to show the resourcefulness and mechanical ingenuity of our creative staff.

Let us study your packaging needs and offer some practical sales-building suggestions.



An improved aseptic package for surgical dressings. Patent applied for.

R. C. CAN CO.

Manufacturers of Round, Square, Oval and Oblong Paper and Fibre Cans.

ST. LOUIS, MO.

Branch Factories at Kansas City, and Rittman, Ohio

In-Dur



MOLDING RESINS

Closures, containers, display units, and the many other devices which are best executed by the molder's art, gain valuable sales appeal through the quality of In-Dur Molding Resins. » » » As these resins are made by the producers of the most important constituents which enter into their composition, this quality is closely guarded and remains dependably constant. » » » In-Dur Molding Resins are available in a wide range of colors and a variety of mottled designs. Their molding properties are such that even difficult objects may be readily molded to perfection. In-Dur results in strong, durable products, beautiful and free from surface blemishes, unaffected by acids, alkalis or other destructive agents.

Reilly
TAR AND CHEMICAL CORPORATION
MERCHANTS BANK BUILDING INDIANAPOLIS
500-5th AVE., NEW YORK 2513 S. DAMEN AVE., CHICAGO

Any molder can produce your design from In-Dur if you so specify

XUM

Five Bags of Powder a Settin' in a Row Used by Package Makers---Saves a Lot of Dough

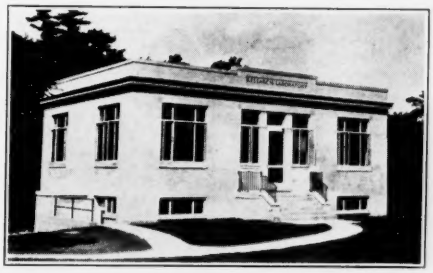
LE PAGE'S COLD SOLUBLES



FOR ALL PACKAGE OPERATIONS:

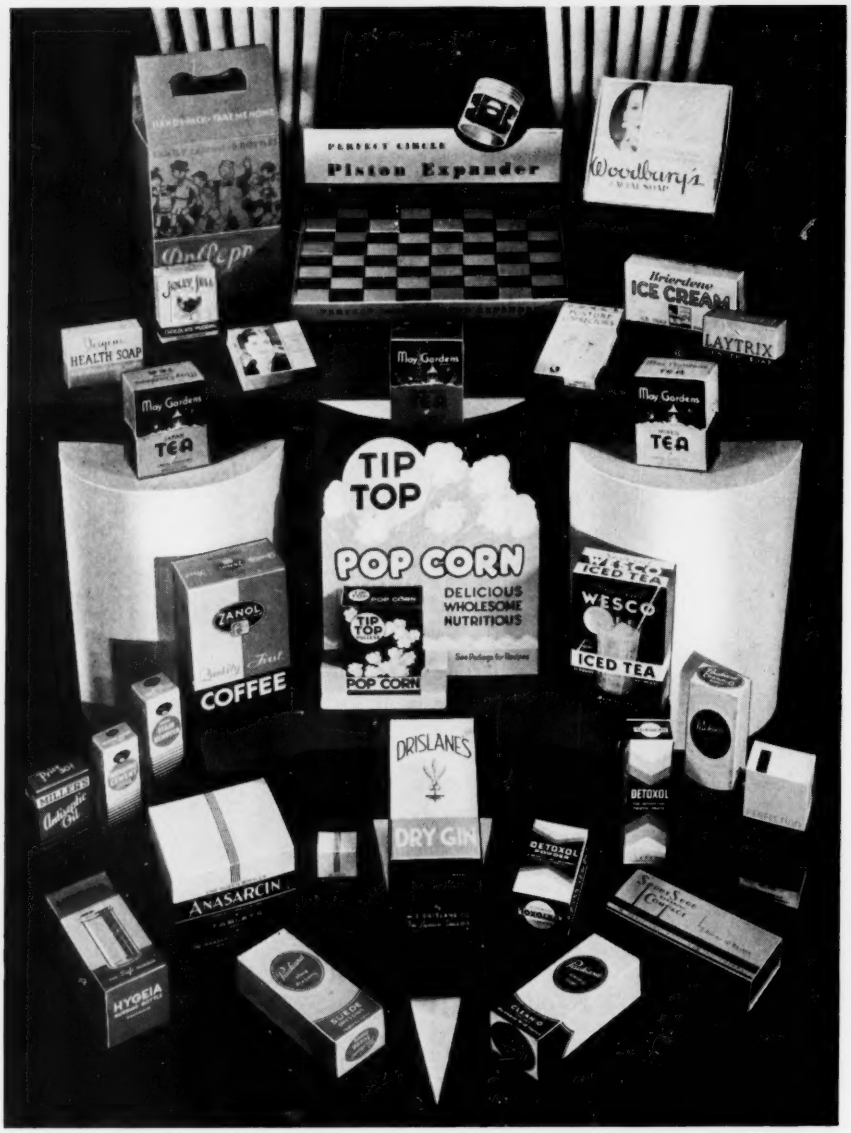
¶ Economy—price and production.
¶ Wider range of application than similar adhesives.
¶ Practical application for machine work.
¶ Proper qualities for adaptation on a given machine.
¶ Cleaner and greater production—less shut-downs.
¶ Once demonstrated—always used.
¶ You take no chance or risk in trying it out.
¶ No freezing—as with liquid gums.
¶ A demonstration doesn't cost anything—it's bound to save you dollars.

The Research laboratory where the LePage's line of cold solubles were developed, tested and proven.



The facilities of this laboratory are extended to the package trade on all your problems. Working samples on request.

Russia Cement Co., Laboratories and Factory GLOUCESTER, MASS.



PROFITABLE PACKAGES

The element of luck played no part in making the packages, created by R-T-G in 1933, seen, wanted and bought by larger and more profitable numbers of consumers. Rather did careful study of prospective consumer needs and desires, together with the sales and display methods used in retail stores, make them preferred above competitive packages.

The experience of the R-T-G Staff extends over many lines of business, and combines the faculty of interpreting good sales ideas and expressing them in the cartons and counter displays they create. If you seek experienced counsel in making your packages better self-salesmen, it will pay to advise with them, as have the manufacturers whose modern and profitable packages are shown in the illustration.

THE RICHARDSON-TAYLOR-GLOBE CORP.
4505 MITCHELL AVENUE, CINCINNATI, OHIO



Individuality

So easy to recognize . . so hard to attain . . bound to be admired . . sure to be copied . . but beyond imitation.

The very essence of this inimitable individuality may be found in Wynekoop Metalabels.

SAMPLES AND PRICES UPON REQUEST

WALKER WYNEKOOP CO.

Modern Labels and Seals

300 WEST AUSTIN AVE. CHICAGO, ILLINOIS

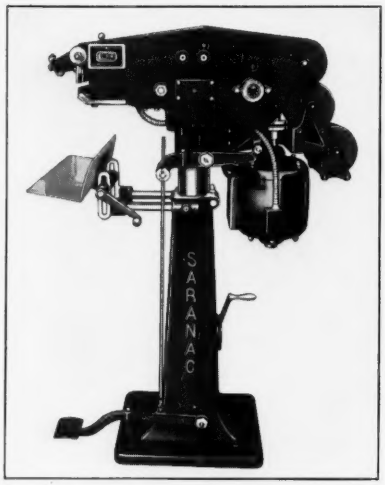
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SARANAC MACHINE COMPANY

Stapling and Package Making Machines
For Wooden, Veneer, Plywood, Fibre and Paperboard Containers
SPECIAL MACHINERY
BENTON HARBOR, MICHIGAN, U. S. A.

SARANAC PAPER BAG SEALER TYPE D

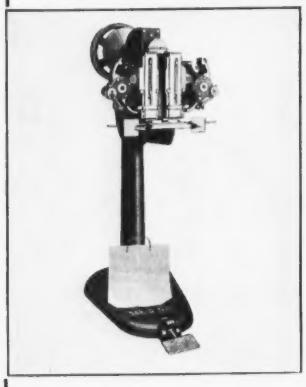
The machine that made the paper bag a real package. The field for paper bags has been greatly enlarged and the strength and usefulness as well as the shelf appearance of the bags definitely increased through the method of sealing by folding and stapling the tops, recently developed by Saranac. The Saranac Type D Paper Bag Sealer provides a *sift-proof seal* for the modern Side-Intuck bag which assures a package the equal of a carton in physical appearance, while substantially less expensive than even the cheaper types of cartons. In operation the filled bags are fed into the machine from the conveyor line and the folding and stapling automatically performed at a single stroke. The machine can be equipped to drive as many as six staples at each stroke. Production ranges from 15 to 25 bags a minute and machine can be supplied to meet the requirements of an exceedingly extensive range of package sizes. For use in the packaging of coffee, prepared flours, insecticides, dry paints, dry chemicals, etc.



Full details as to cost and specifications will be sent on request. With your inquiry please send samples of each size and type of bag you wish to close, in order that we may fully understand your requirements.

Saranac Handle Stapler

For Shopping Bags

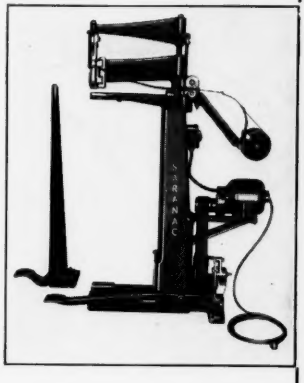


This machine is shown as being typical of thousands of Saranac special applications of wire stapling to containers of all kinds. Compared with a single head stapler, this tool is really 4 machines in one. It makes and drives 4 staples to attach one complete handle to a shopping bag in one stroke. In addition, an automatic gauge locates the handle at the proper height above the top of bag before stapling. The result is a uniformly high quality of shopping bag, neat, strong, and at a production rate which repays the purchase price in a relatively short period.

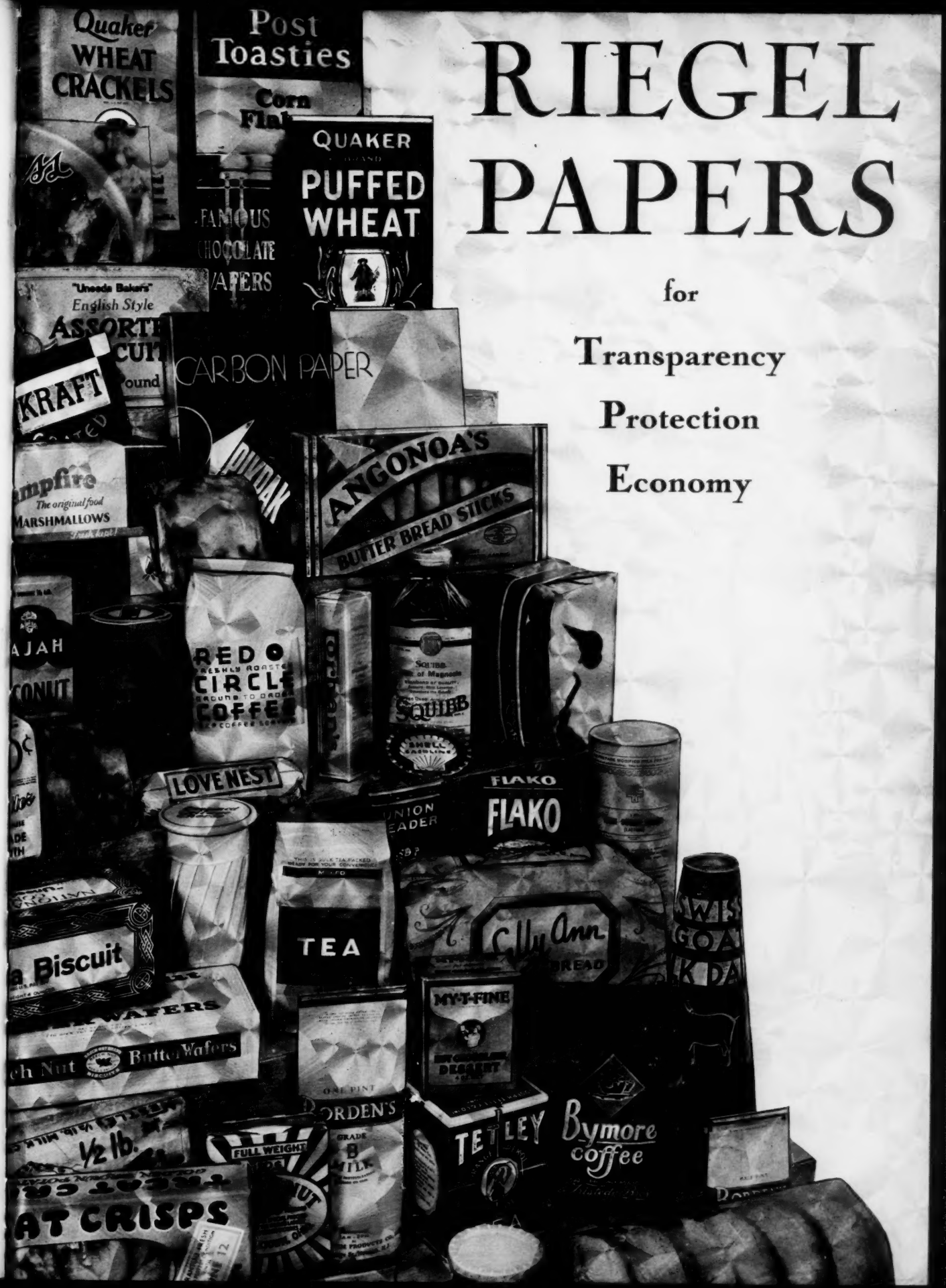
Saranac Machine Company is the largest builder of wire stapling machines for containers of all kinds. A standard or special Saranac machine will probably fulfill your every need.

SARANAC STAPLER

TYPE KM-12"



The Saranac Model K Stapler presents a distinct opportunity to all manufacturers whose products demand economical low cost wire stitching. The lowest priced tool in the Saranac line, this machine can show amazingly profitable operation even when used intermittently. On straight-line continuous production it has no equal for the quality and economy of its work. Particularly suited for the manufacturer of suit boxes, side stitching of corrugated and solid fibre boxes, bag top sealing and the bottom sealing of fibre containers of all sizes. May be had equipped for foot or motor power.



RIEGEL PAPERS

for

Transparency

Protection

Economy

XUM

SIXTEEN POPULAR RIEGEL PAPERS WITH PACKAGING DATA ON THEIR PHYSICAL QUALITIES

The following table shows the comparative qualities of the papers contained in this portfolio. In addition, there are other general advantages applying to all Riegel lines. They work rapidly and economically on automatic packaging machines. They will not dry out and crack. They are furnished in sheets or rolls of any size. They are correctly priced.

Key Number	Grade	Std. Wts. (per 500 sheet rm. of size 24x36)	Transparency	Resistance to: Grease or Oil	Resistance to: Moisture	Sealing: Heat or Glue	Other Qualities	General Use
1	Riegeline	20-25-30	High	High	Slight	Glue	Twists well. Very economical. Pliable	Outer carton wraps and bags. Bottle wraps.
2	Riegelite	23	High	High	High	Heat	Low-cost. Pliable. Crackproof	Outer wraps and bags for food products needing moisture resistance or retention.
3	Greaseproof Parchment	25-30-40-60	None	High	Slight	Glue	Grease cannot penetrate or spot	Ham and bacon wraps. Carton lining. Xmas cards. Corrugating.
4	Laminated Riegeline	33	Moderate	High	High	Glue	Inner wax layer gives moisture protection without surface wax	Carton lining. Pipe tobacco packages. Moisture-proof bags.
5	Amber Glassine	25-29	None	High	Slight	Glue	High grease resistance at low cost	Carton liners. Coffee bag lining.
6	Celoglaze	25-30-40-50	Slight	Moderate	Slight	Glue	Cheapest bleached Glassine	Carton lining. Low cost bags and envelopes not needing transparency.
7	Colored Glassine	25(7 colors)	None	High	Slight	Glue	Light-proof	Corrugated padding. Bottle and package wraps.
8	Opal Glassine	25-30-40	Slight	High	Slight	Glue		Bag and cotton lining.
9	Embossed Glassine	25(5 designs)	Slight	High	Slight	Glue	Decorative appeal	Bags, envs. and outer wraps.
10	Celowax (Waxed 1 side)	27	Slight	High	Moderate	Both		Wax lined bags. Carton lining.
11	Waxed Amber	29-33	Slight	High	High	Heat	High moisture resistance at low cost	Carton liner for crackers, etc.
12	Manila Waxed Sulphite	35	Slight	Slight	Moderate	Heat		Carton lining.
13	Transp. Waxed Sulphite	24-30-34	High	Slight	Moderate	Heat		Carton wraps.
14	Celowax	29	Slight	High	High	Heat		Carton liners.
15	Diafane	20-25	High	High	High	Both	Hard glossy surface. Not waxed	Doughnut wraps. Package wraps. Env. windows.
16	Crystalon	——	None	Slight	None	Glue	Novelty and decorative appeal	Box covers. Xmas cards. Counter Displays.

PAPERS OR CONTAINERS NOT SAMPLED HEREIN, BUT RECOMMENDED BELOW

17	Bag Lining of No. 5 or No. 8	21	Window-front Bags	25	Laminated Sulphite Bag
18	Dry Waxed Sulphite	*22	Vegetable Parchment	26	Celoglaze Side Stock
19	Ordinary Waxed Sulphite	*23	No. 6 Laminated to Foil	*27	Foil
20	Printed Opaque Waxed Sulphite	*24	Unlined Tins	28	No. 6 Laminated like No. 4

*Not manufactured by this company. Information gladly furnished.

A LIST OF PRODUCTS WITH PAPERS RECOMMENDED FOR THEIR PACKAGING

(All Recommendations Based on Similar Use by Recognized Manufacturers)

Numbers refer to Items listed above. Recommendation indicate grade used, although frequently in a weight different from the sample herein.

	Packages: Inner Wraps	Packages: Outer Wraps	Bags or Envelopes	Special
Bacon	6-8	1-10	—	1-3-15
Bottle Wraps	—	1-7	—	—
Box Covers	—	16	—	—
Box Leaves	1-7-9-16	—	—	—
Box Lining—Fancy	9-16	—	—	—
Greaseproof	3-5-6-8	—	—	—
Moistureproof	10-11-14	—	—	—
Bread	—	—	—	20
Bread Sticks	—	1	—	1-2-6
Butter	—	—	—	22
Cakes and Cookies	—	2	1-2-4	—
Candy Bars	6-19-27	1-2-13	—	—
—Penny	—	1-6	—	—
Candy—Boxed	9-13	1-15-19	—	—
—Bulk	—	—	—	19-20
Candy Cups	—	—	—	7
Cereals	14	2-13-14	—	—
Cheese	—	27	—	23
Cigarette Cartons	—	12-13-14	—	—
Cocoa	8	—	—	24
Cocoanut—Shredded	14	2-13	—	—
Coffee—Bags or Cartons	5-8	—	—	17
Collars—Soft	—	—	1	—
Corrugated Padding	—	—	—	3-7
Cough Drops	—	2-12-13	2-4	—
Crackers—Paper Containers	3-11	1-2-13	1-2-4	—
—Tin Containers	3-14	1	—	—
Dates	14-19	2	—	—
Doughnuts	—	1-15	1-15	—
Drugs	3-4-11-19	1-7-9	1-6	—
Envelopes—Sampling	—	—	1-2-6	—

	Packages: Inner Wraps	Packages: Outer Wraps	Bags or Envelopes	Special
Envelopes—Window	—	—	—	1-15
Flour—Prepared	10	—	—	—
Frozen Confections	—	27	9	—
Frozen Fruits	15	1	—	—
Fruits—Dried	12	1	4	—
Gelatin Powder	25	—	25	—
Greeting Cards	—	—	—	3-16
Ham—Whole, Cured	—	3-9	—	—
Health Foods	3-19	1-2-13	—	—
Ice Cream	22	6	—	—
Insecticides	8-19	1-7-13	—	—
Lard	—	—	3	—
Macaroni and Noodles	18	—	1-4	21
Napkins—Paper	—	1-9	—	—
Oleomargarine	3	—	—	—
Pies	—	—	1-21	—
Potato Chips	11-14	1-13	2	—
Pretzels	10	1-2-6-13	1-4	—
Rice	6-10	1	—	—
Rolls—Pan	—	2	2-4-6	20
Shirts	—	1	1-21	—
Soap—Cake	6-8	1	—	—
—Chips and Powder	12-14	13	—	—
Spices	10-12-14	1-2-13	—	—
Stocking Wraps	—	1	9-16	—
Sugar	14-19	—	—	—
Tea	10	1-2	—	—
Tobacco—Chewing	4-18-23	1	—	—
—Pipe	4-18-23	1	—	—
Toothpaste	—	1	—	—
Window-Front Bags	—	—	—	26

RIEGEL PAPER CORPORATION

342 MADISON AVENUE, NEW YORK

Liberal Working Samples of any of these Papers sent without charge. Please state Name and Number of Paper and Size of Sheet desired.

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A SPECIAL SELECTION FROM
OUR 130 PACKAGING PAPERS

KEY NUMBER–
1–2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

AN INVITATION

There are over 130 Riegel Papers made to fit the specific packaging needs of various industries. If you're faced by some production problem, bringing out a new package, dressing up an old one, or just frankly trying to cut your packaging costs . . . write us your story today. To manufacturer, printer or advertising agency we offer unbiased advice based on experience and research work in many fields. There is no charge, of course.

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PAPER CORPORATION
342 Madison Avenue, New York City

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Designed For Results

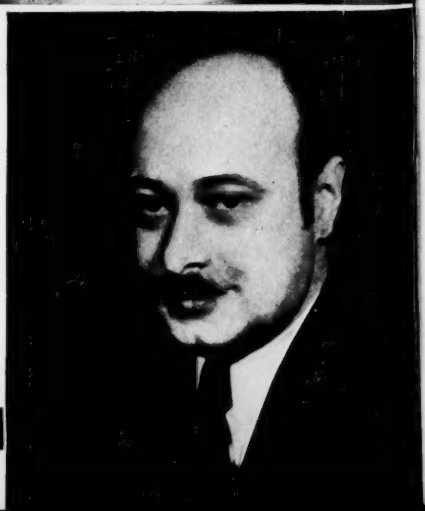
by

EDWIN H. SCHEELE

You can economically use the practical experience—gained by continuous association with package design and merchandising problems—that has resulted in sales gains for my clients. My record of nineteen years designing sales packages that have met with consumer acceptance for both large and small manufacturers warrants your consideration when in need of the services of an industrial designer. It costs nothing to find out if I can cooperate with you. Your letter receives my confidential care.



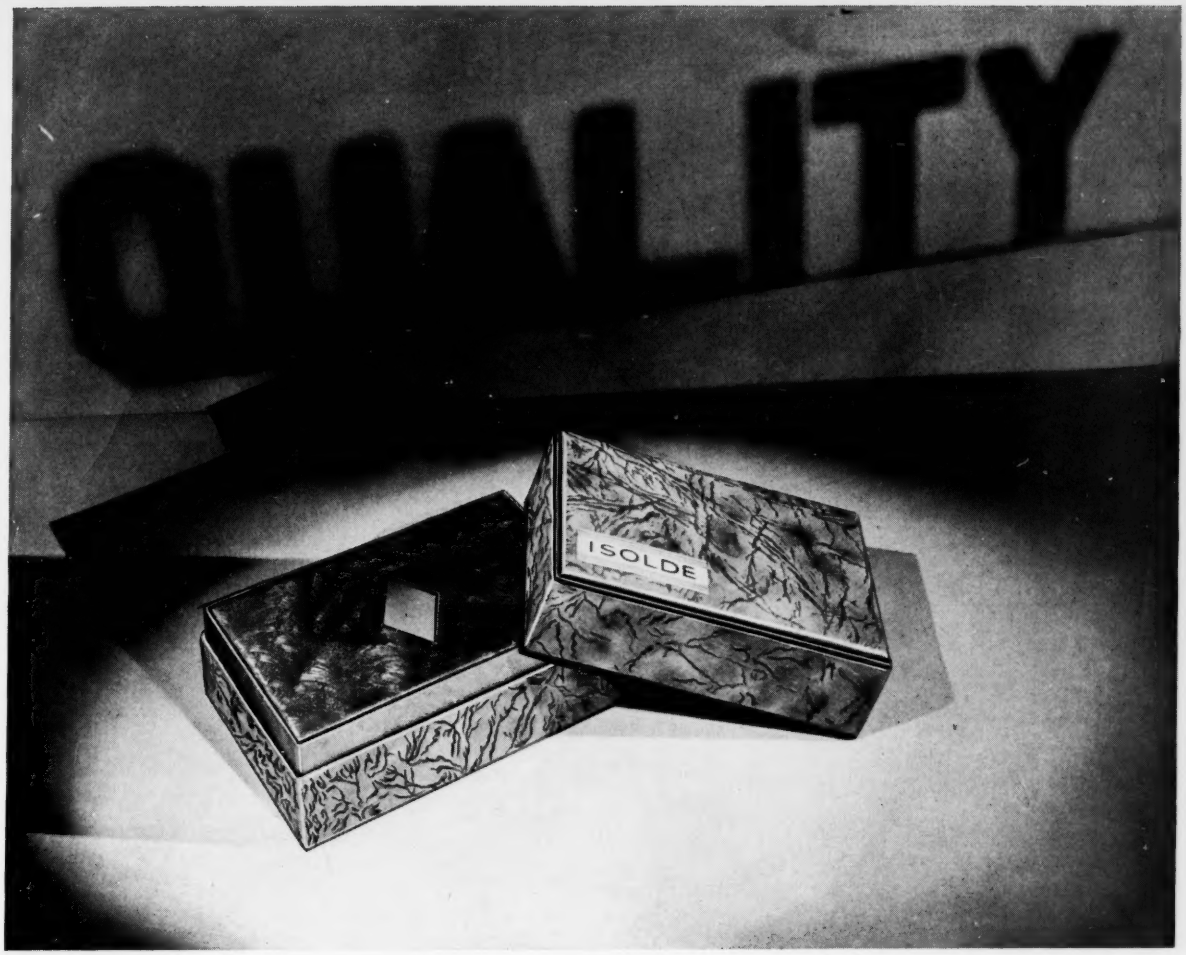
FROM THE CONCEPTION OF AN IDEA TO DESIGNING THE MECHANICAL CONSTRUCTION OF THE PACKAGE AS WELL AS ITS SHAPE AND DECORATION, RECOMMENDING NEW MATERIALS AND METHODS OF PACKAGING WHERE PRACTICAL



EDWIN H. SCHEELE, INC ■ 419 FOURTH AVENUE, NEW YORK

SPECIALIZING IN THE CREATIVE DESIGN AND MERCHANDISING OF SALES PACKAGES

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Quality stands behind every Rowell-made box

Those qualities of fine workmanship, fine materials, and long experience in the handling of set-up boxes are, of course, to be found at their best in every Rowell-made box.

But beyond that, a most subtle element of quality is given to the product of the Rowell plant. For in every Rowell box, years of experience in the design and planning of beautiful containers for beautiful products bring forth a definite perfection of line and tone. This ability and experience, in design as well as in construction, is at the command of every manufacturer of fine products—products worthy of the finest boxes that skill and experience can produce.

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Chicago Office: H. G. MacKAY
180 North Wacker Drive
Tel.: RANdolph 0934-0935

Los Angeles Office: C. H. E. DUNN
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The E. N. Rowell Company is one of the largest and oldest manufacturers of round as well as of fine oblong boxes. Our facilities qualify us to produce all sizes and types of round boxes for powder and other products.

Bags by Royal!



Square-bottom duplex



Sell-O-Face

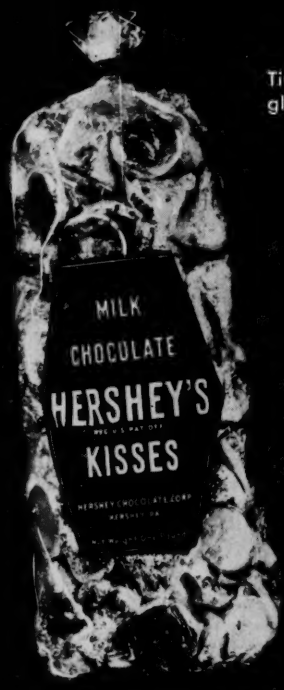


Half-and-Half, satchel-bottom



Flat, all Cellophane

Tin-tie closure, glassine lined



Satchel-bottom duplex



Royal Duplex

Modern merchandising demands modern packaging. Bags by Royal are a part of the modern trend. Styled for a thousand-and-one uses, Royal Bags bring sparkle and sales appeal to a thousand-and-one varied products. For adding sales appeal to your product, by all means consider Bags by Royal. Write today for free sample bags designed to fill your particular requirements.

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Department M . . . 5800 North Seventh Street

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Flat, all-glassine

Sell-O-Face with cardboard insert

Bev-L-Pak Bag, cardboard insert

Flat, all-glassine

All-over printing, foil lined

Cellophane triplex

Flat Bond

THOMAS M. ROYAL & CO.

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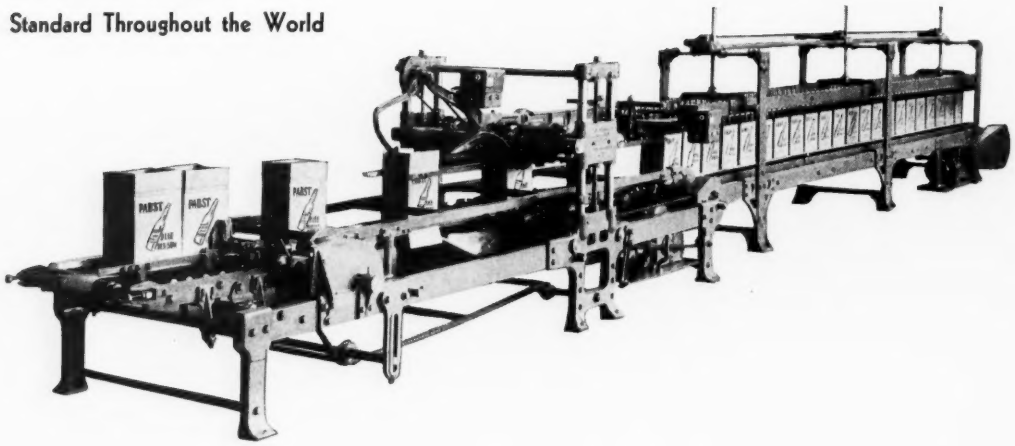
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AUTOMATIC
Package Handling Equipment

STANDARD-KNAPP

Automatic Equipment Is

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CASE SEALERS---"Standard" Top and Bottom Sealers automatically glue and seal the top and bottom of corrugated or solid fibre shipping cases in one operation. Every case is completely and perfectly sealed. All Sealers are quickly adjusted for different size cases. *No labor whatever is required.* Also TOP SEALERS, BOTTOM SEALERS and COMPRESSION UNIT SEALERS.

CASE PACKERS---for automatically packing cylindrical or rectangular cans and packages into the shipping case. These Casers pack the cans or packages into the case with the greatest possible speed and at the lowest labor cost.

CAN LABELERS---"Knapp" Can Labelers automatically apply full lap labels to cylindrical tin, fibre and glass containers. Fast and accurate labeling at the lowest possible cost. For over 40 years Knapp Labelers have been standard equipment in canning and other plants using tin cans and similar containers.

SPECIAL CONVEYORS furnished to make a complete hook-up of these various Standard-Knapp machines.

ENGINEERING SERVICE

Our Engineering Department is at your disposal gratis. We will gladly make a survey of your package or can handling requirements and submit layouts showing how to most economically take care of such requirements. Write or wire for our representative to call at your plant.

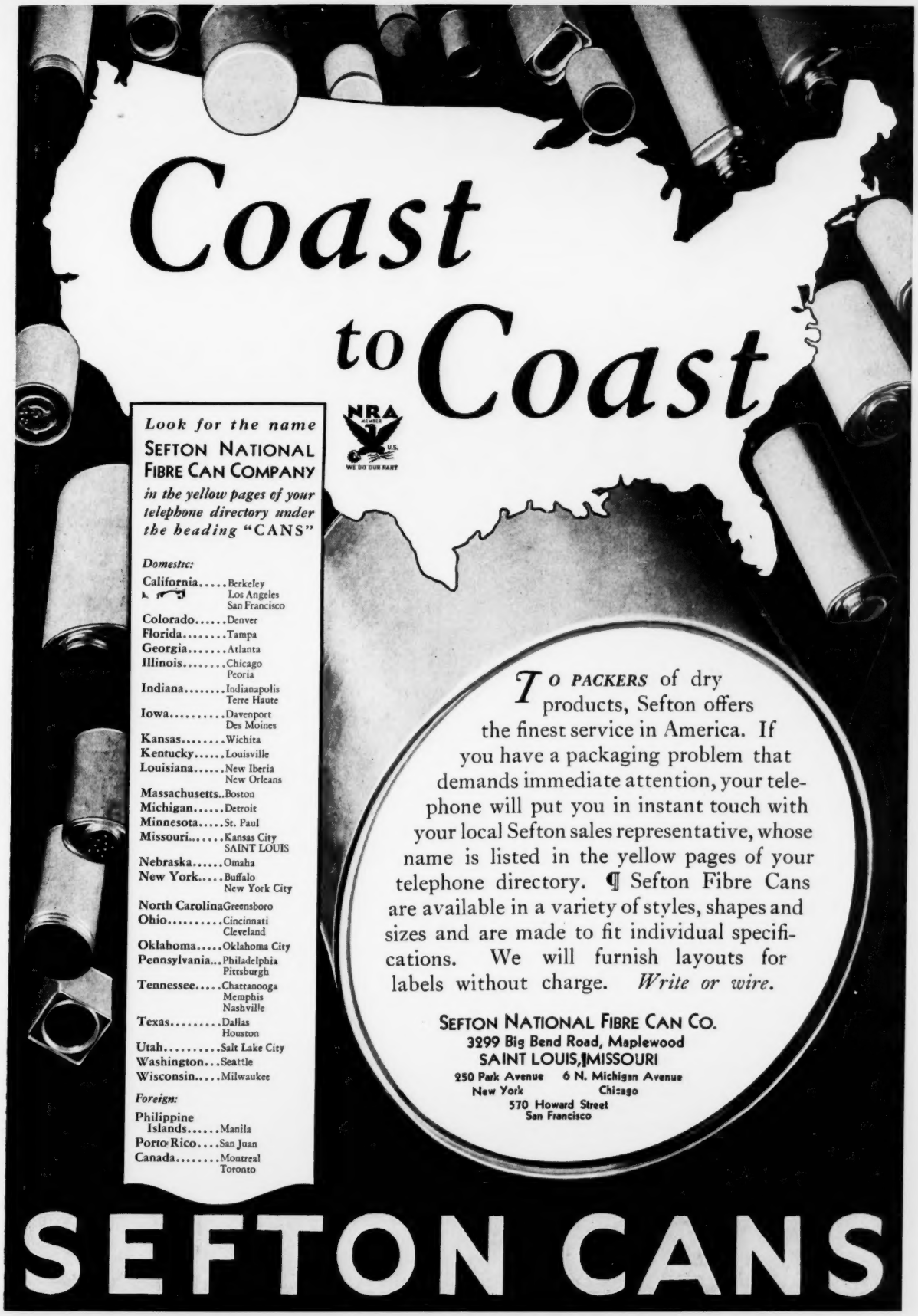
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THE old saying, quoted above, applies with particular force to the molding of plastics.

Each step of this highly technical process—selection of raw material and the designing of the mold and the molded piece to the completion of the finished product—calls for the utmost skill and experience.

Tech-Art molding service is backed by almost a half century's experience in the plastic molding field. We have designed and produced, among other things, innumerable containers (for Yardley, Squibb, Thinc, Eversweet and others), which have been outstanding successes.

We mold in all the well-known plastics such as Bakelite, Durez, Beetle, Plaskon, Unyte and Tenite. To you who may be seeking ideas and assistance in the development of distinctive containers, closures, display stands and other devices, we offer the ONLY complete service in the Plastic industry.

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MOLDERS
OF PLASTICS

Trade Mark Reg.
ESTABLISHED 1891

TECH-ART PLASTICS COMPANY

Formerly Boonton Rubber Manufacturing Company
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F. J. STOKES MACHINE COMPANY

COLLAPSIBLE-TUBE, JAR AND POWDER FILLING EQUIPMENT

New York Office—
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Chicago Office—307 N. Michigan Ave.

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PHILADELPHIA, PA.

Los Angeles Office—
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Powder Filler, 15-B (Basic Model)

PRODUCTS

Tube Filling Equipment

Jar and Can Filling Equipment

Powder Filling Equipment

Tablet and Pill Making Machines

Counting and Bottling Machines

Mixers—Kettles

Conveyors

Bottle Washers

Special Filling Machines

ADVISORY SERVICE

Our 38 years' experience in designing and building filling equipment for collapsible tubes, jars, cans, bottles, boxes and cartons enables us to recommend the most economical and efficient set-up for any product and, if necessary, the proper auxiliary equipment. This advisory service is available upon receipt of information on your production requirements and samples of material and containers. Special filling equipment developed for special products. *Folders and booklets on request.*

DIAMONLOCK CLOSURE

(no clip required)

The STOKES "DiamonLock" Closure, covered by U. S. Patent No. 1,852,225 and other patents pending, which is applied by our 79-D, 79 D-80A, and 90-D machines (see below) is of fine appearance and saves all clip costs. Tests show it to be more resistant to leaks than either the standard clip type closure or other types of clipless closures. This is due to the manner in which the "DiamonLock" Closure weaves the metal together in a neat, tight seal without allowing the indentations to encroach upon the edges of the previously made folds. ***Send for a sample tube showing this new type of clipless closure.***

POWDER FILLING EQUIPMENT

STOKES Powder Fillers are designed so that the minimum investment in machinery will adequately equip the user. The 15-B Model can be converted and expanded to the 15-C or 15-E models, the fastest single-auger machines on the market. Besides the machines described below, other machines and attachments are available. ***Send for New Catalog.***

Powder Filler, 15-B (Basic Model)

Fills practically any powdered product into tins, boxes, bottles, cans and cartons of various shapes and sizes up to 12″ in height. Capacity, 20 to 35 containers per minute. Exceptional accuracy and cleanliness insured by special auger-type filling mechanism, slow-motion agitator and two-step fill. Compactness and simplicity of design save floor space and time in operation. Easily cleaned and quickly "changed-over"; especially suited to the manufacturer with a varied line. As production grows, this machine does not need to be discarded but can be converted and expanded to a full automatic machine.

Powder Filler, 15-C (Full Automatic Model)—A full-automatic model for large production and sampling. Can also be used as basic model for short runs or special products. Will fill 40 to 50 containers per minute, depending on size and shape of container and the material, and do a clean job. Holders which grasp the containers firmly without marring them, exact indexing and proper timing permit filling at these high speeds without spillage. This machine is the 15-B (basic model) converted and expanded by adding certain attachments such as the container carrier, the "no-can-no-fill" control, and the conveyor and the capper, if desired. One operator required for filling; two for filling and capping.



Powder Filler 15-C (Full Automatic Model)

Powder Filler, 15-E—Especially suitable for filling small containers such as face powder boxes. Has all the features of the 15-C (see paragraph above) but operates at high speeds (70 or more per minute). Can be equipped with automatic "take-off" for filled containers.

Granular Attachment—For filling free-flowing products. No drip. Can be added or removed in 10 minutes.

Dust Collector—A suction dust-collecting nozzle for protecting operators from obnoxious or poisonous dust.

Packing Attachments—Packs containers from the bottom up and measures accurately the exact amount desired.

Weighing Attachment—An electrically controlled scale for weighing, instead of filling by volume, can be supplied if desired.

TUBE FILLING EQUIPMENT

We make a full line of hand- and power-operated tube filling and closing equipment. (See below.) The machine illustrated is our Full-Automatic Filling and Closing Machine, No. 90-D. It applies the "DiamonLock" Closure described above and is a versatile production machine suitable for many different products and tube sizes or for large production on practically any liquid, semi-liquid or paste. Handles tubes as small as $^3/_8$″ in diameter and up to 1½ x 7″. Capacity, 140 gross per 8-hour day. Accurate, clean, easily adjusted and quickly "changed-over." Requires but one operator. Thumb-screw adjustments for fill, "no-tube-no-fill" device, special forming device for insuring neat, tight folds, guarded moving parts and base-housed motor—these are a few of many advantageous features. Rugged construction shown by weight (2000 lbs.). ***Send for folder.***

Tube and Jar Filler, No. 2-C—Handles any material from a liquid to a heavy paste and fills tubes or jars as desired by using proper nozzles and hoppers. Piston-pump type of filling mechanism. Output, 20 to 40 per minute. Belt or motor driven.

Tube Closing Machine, No. 79-D—Makes a neat, tight fold and applies the STOKES "DiamonLock" Closure. One operator required, output, 25 to 40 per minute. Belt or motor driven.

Tube Filler and Closer, No. 80-A—For semi-liquids. Fills and closes with two neat, tight folds, but does not apply "DiamonLock" Closure. Output, 35 to 40 per minute.

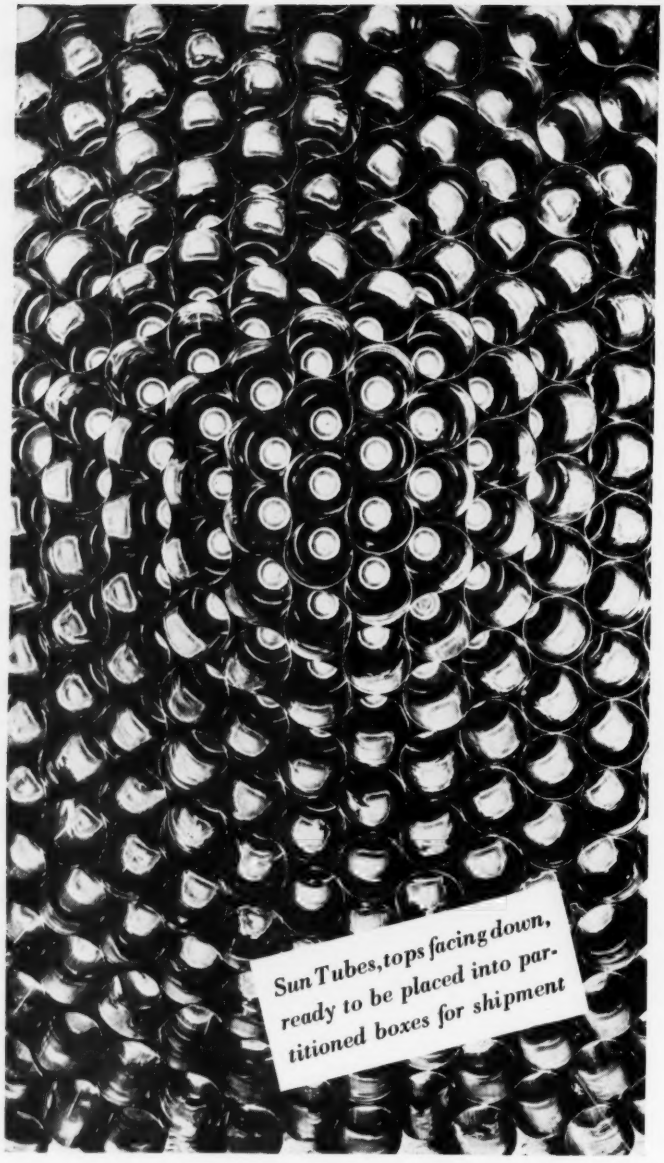
Combination Filler and Closer, No. 79D-80A
For semi-liquids; a combination of the two machines described above; fills, closes, and applies the "DiamonLock" Clipless Closure. Output, 30 per minute. One operator.

Simplex Filling Machine—For filling paints, varnishes, oils, food products, etc., into large size tubes, cans and jars. Easily and quickly cleaned and "changed-over." Will fill containers up to 5-gallon capacity. Output, 35 to 40 per minute.

Other Filling Equipment. Hand-operated fillers, closers and clippers for the small manufacturer and for experimental work; special filling machines for special products. Special nozzles, hoppers, and metals furnished to meet individual requirements.



Full Automatic Tube Filler and Closer, 90-D (Applies the STOKES "DiamonLock" Closure)



LOOK INTO SUN TUBES

● Sun Tubes may be purchased with every confidence that they will be found to be sound in structure, that they will be decorated with skill and care, and that they will perform satisfactorily as a safe, competent and attractive package for your product in the hands of your consumers.

SUN TUBE CORPORATION

HILLSIDE, N. J.



"HERE IS QUALITY IN PACKAGING—"

Whether Your Merchandise Is Cosmetics—Soaps—Hair Pins—Foodstuffs Or Perfumes—

That is the message every Smith Crafted container delivers—regardless of its size—its shape—its color or its design detail. In the words of one satisfied user, "They will impress the consumer with the quality of the merchandise to such an extent as to overcome to a great degree the usual necessity for a quality sales talk on the part of the retail sales force."

SMITH CRAFTED CHICAGO

Because they are designed to meet the particular needs of each merchandising program—made to order and not carried on the shelf—"custom built" and not "machine assembly line"—they can be made as utility items with a distinct utility value. Because they are made of a durable material, sturdily constructed and not "put together by machine," they have a definite Use Value which is demonstrated in actual use.

And—finally—all Smith Crafted containers represent examples of deep embossed effects in hand tooled reproductions—in replicas of ancient craftsmanship—in beautifully modeled detail that every human hand loves to touch and to handle—an urge handed down from the generations of the past which appreciated hand craftsmanship because it represented the greatest of all arts.

If your merchandise can be packed in a utility container similar to those illustrated—and if you are in a position to order these containers in quantity it will be to your advantage to communicate with

The S. K. Smith Company
2857 North Western Ave., Chicago
or
Charles W. Kulp
200 Fifth Avenue, New York City
Eastern Representative

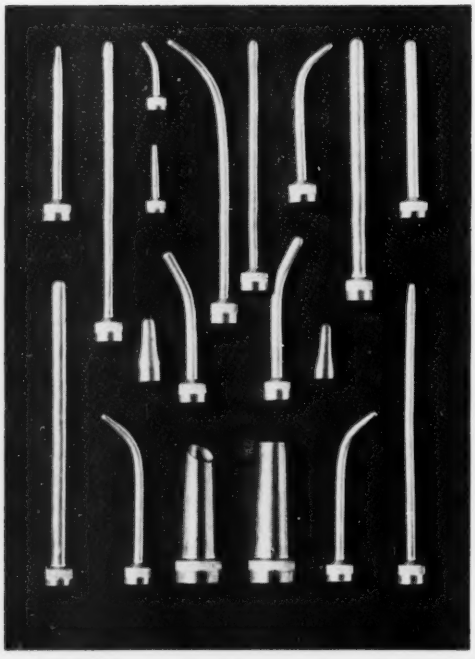
SMITHCRAFTED

XUM



STANDARD COLLAPSIBLE TUBES

All Sizes—Plain or Decorated



We are equipped to manufacture both plain and decorated Collapsible Tubes in sizes from $\frac{3}{8}$" to $2\frac{1}{2}$" in diameter and with styles of openings suitable for practically any product.

This wide range of sizes and styles, together with our thirty years' experience, enables us to offer you exceptional service in solving your packaging problems.

Applicator Pipes

The adjoining illustration shows some of the many types of applicator pipes which we manufacture. Attached to Collapsible Tubes they provide easy application of various ointments and other products. Special pipes can be developed for special purposes.

Write for illustrated catalog describing our complete line of tubes and accessories.

STANDARD SPECIALTY & TUBE COMPANY
New Brighton, Pa.

XUM



Nashua

VELOUR PAPERS

NASHUA GUMMED & COATED PAPER CO., NASHUA, N.H.

Nashua **VELOUR** paper has "depth of pile" and rich velour appearance enhanced by these two effective embossings. Note the beautiful shadow effects in different lightings. A suitable box covering for many purposes, especially effective when used in combination with Siltex and other Nashua Papers.

TO BOX BUYERS • If you have a product requiring a de luxe container have your box maker cover a few samples with Nashua Velour Embossed paper. This paper makes a rich lining for jewelry and novelty boxes.

TO BOX MAKERS • Samples and sheets of Nashua Velour and other Nashua

XUM

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boxes.

XUM

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TEXTILEATHER
THE CUSTOM BUILT COATED FABRIC
NOT LEATHER

● Textileather . . . the Symbol of Outstanding quality.

Textileather is a quality covering for quality set-up boxes. A pyroxylin coated, embossed material in fabric or non-fabric base, combining art and beauty with adaptability and economy.

Textileather warrants serious consideration from every manufacturer of quality set-up boxs. It can be used on volume production as well as on exquisite packages of cost and beauty.

Textileather expresses individuality, a most important requisite in package design. This material is available in so many grainings and so many colors, or combinations of color, that it would be possible to provide a distinctive effect for each type of set-up box to be manufactured in this country during 1934 and without duplication.

Textileather is versatile. In proper qualities it is used for automobile topping, upholstery, bookbinding, leather goods, shower curtains and many other purposes. It is sanitary, moisture-proof and cleanable. The colors and grainings are permanent. It may be spot-embossed and superfinished or gold-stamped and decorated by the box maker.

TEXTILEATHER CORPORATION
TOLEDO, OHIO

TEXTILEATHER





Your 1934 Packaging Catalog is bound with Textileather

XUM

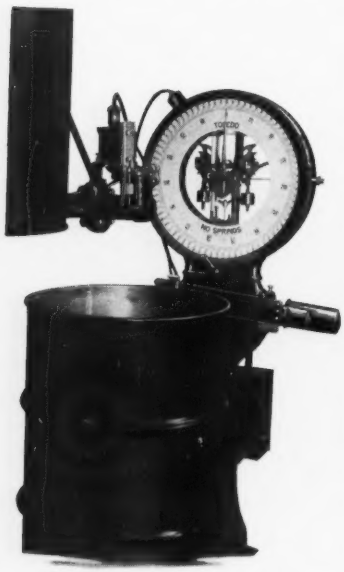
TOLEDO PRECISION DEVICES, INC.
DISTRIBUTORS: TOLEDO SCALE CO. TOLEDO, OHIO

PRODUCTS

Toledo Precision Devices, Inc., designs and manufactures accurate, automatic devices for weighing and filling cartons and containers in packaging operations. The advice and assistance of a skilled engineering staff are available to help you solve your individual production problems in weighing or proportioning.

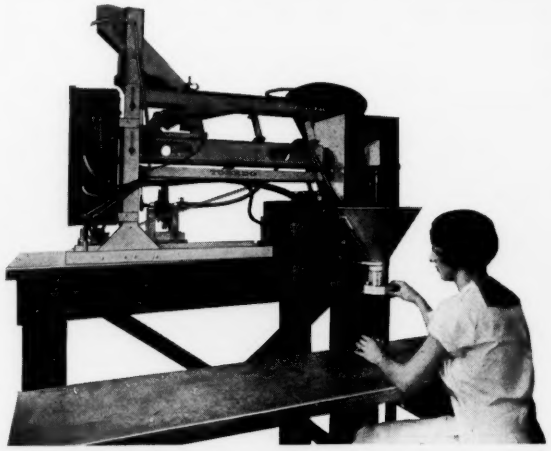
TOLEDO LIQUID FILLING MACHINES

For precision weighing and automatic filling of predetermined amounts of fluids or semi-liquids into containers of varying weight and for weighing out predetermined amounts in packaging, batching or blending operations. Controlled by the photo-electric tube. No mechanical contact between cut-off and scale — no lag — no friction. Can be furnished in any capacity, from a few ounces of perfume to drums of oil. Equipped with one or two valves: (1) motor operated or solenoid type for fast feed, (2) solenoid type for dribble feed. Automatic tare device can be furnished to compensate for all variations in the weight of containers to be filled. When a container is placed on the scale and the starting button depressed, the machine automatically compensates for the weight of the container, starts the flow of material, and cuts it off at exact weight, eliminating all manual operations and mental calculations.



TOLEDO AUTOMATIC WEIGHING AND FILLING MACHINES

For automatic filling of predetermined amounts of granular materials into containers of varying weight and for weighing out predetermined amounts in packaging, batching and blending operations. Controlled by the photo-electric tube. No mechanical contact between cut-off and scale—no lag—no friction. Adaptable for weighing out repeated uniform amounts from a few ounces to several tons. Materials feed into containers through a highly efficient vibrator conveyor, achieving extreme accuracy. Maintains high production speed. Automatic checking as well as automatic filling provided. Feeding, weighing, filling and cutting-off operations are fully automatic; electrically controlled.



TOLEDO EJECTOR DEVICES

For assorting correct weight, underweight, and overweight containers or packages into their proper classifications. Adaptable to conveyor systems.

TOLEDO PRODUCTION RECORDS—Toledo Precision Devices containing Dial Scales can be equipped with the Toledo Printweigh or with graphic recorder to provide an accurate, indisputable record of all weighing, batching or filling operations. The Toledo Printweigh Attachment gives a printed record of each ingredient entering the weigh hopper.

TOLEDO SCALE COMPANY · TOLEDO · OHIO

Automatic Springless Scales for All Net Weight Packing Operations

TOLEDO GRAVITYGRAM SCALE—INDUSTRIAL TYPE



For predetermined weighing operations where material is packed in containers of uniform weight. Capacity—30 pounds. Accurate to 1/1000 of a pound. Toledo pendulum indicating mechanism. Weighs correctly even when out of level. Near Weight Detector standard equipment.

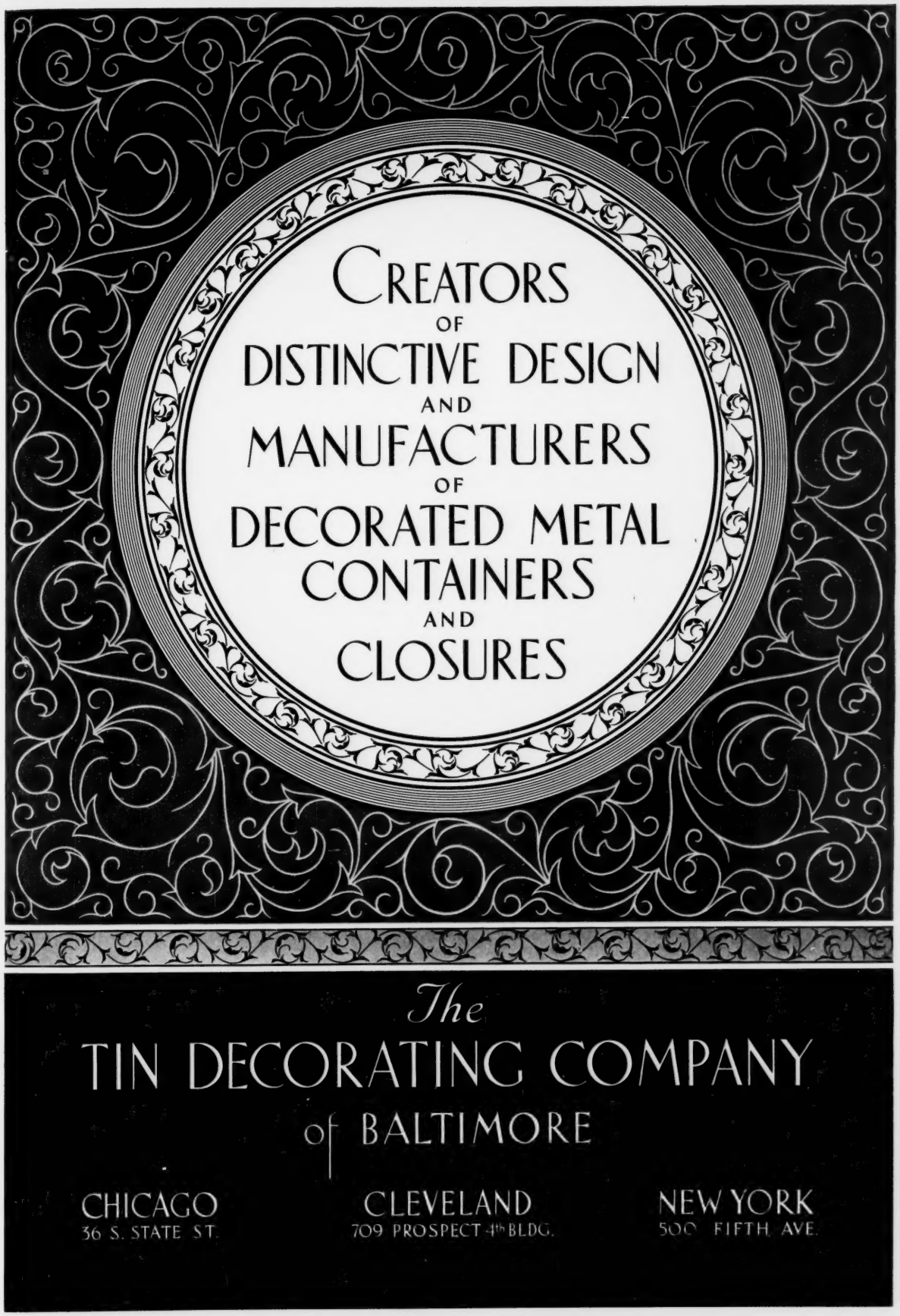
TOLEDO NET WEIGHT PACKING SCALE—BENCH TYPE

For packing predetermined net-weights in containers of uniform weight. Capacity 50 or 100 pounds. Portable type with capacities up to 250 pounds. Traditionally accurate Toledo pendulum indicating mechanism. Under-and-over chart.



SCALE SURVEYS—Trained representatives of the Toledo Scale Company will make, without obligation, a survey of your particular weighing requirements.

XUM


CREATORS
OF
DISTINCTIVE DESIGN
AND
MANUFACTURERS
OF
DECORATED METAL
CONTAINERS
AND
CLOSURES
The
TIN DECORATING COMPANY
of BALTIMORE
CHICAGO
36 S. STATE ST.
CLEVELAND
709 PROSPECT 4th BLDG.
NEW YORK
500 FIFTH AVE.

U. S. BOTTLERS MACHINERY CO.

EXECUTIVE OFFICES AND FACTORY

4015-31 N. ROCKWELL ST., CHICAGO, ILLINOIS

New York Cincinnati Memphis San Francisco

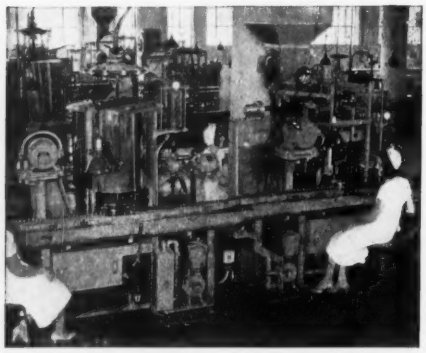
"Our Equipment Produces
MORE OUTPUT WITH LESS LABOR"

MANUFACTURERS OF

Hand Operated Equipment; Semi-Automatic Machines; Full Automatic Machines for Liquids, Semi-Liquids or Semi-Solids.

Cappers (hand, semi or full automatic)
Conveyors (belt or gravity)
Corkers (hand, semi or full automatic)
Dryers (for bottle and cans. Semi or full automatic)
Fillers (vacuum type, accurate measure type, piston type, hand operated, semi or full automatic)
Filters (single plate or multiple drum disc and presses)
Pasteurizers (hand fed, progressive or continuous automatic)
Preheaters (semi or full automatic)
Rinsers (hand, semi or full automatic)
Tanks (wood, glass-lined, stainless steel or copper)
Washers (semi or full automatic for bottles, jars and cans)

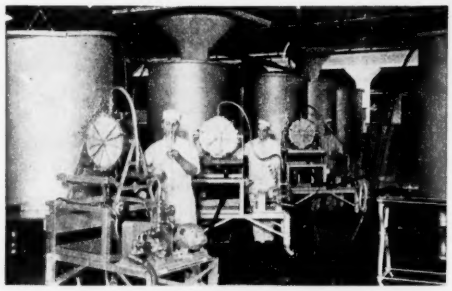
TYPICAL INSTALLATIONS



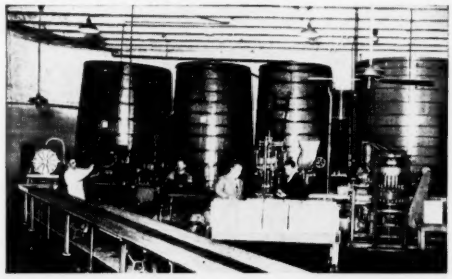
This is a view of a well-known pharmaceutical plant which has three complete lines of Washing, Drying, Filling and Packaging equipment. In the foreground is a U. S. full automatic Rotary Filler and Rotary Capper. Equipment operates at a speed of 120 per minute.



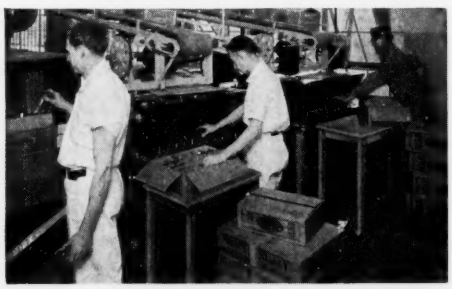
The above photograph shows U. S. Roller Conveyor and Belt Conveyor as used in a prominent distillery.



Directly above is an interior view of a battery of U. S. Filters used by one of the largest drug manufacturers in this country. The merits of the U. S. Filters are recognized by all process engineers.



Above illustrates a typical U. S. engineered plant. This California wine producer uses a complete automatic line, including Rotary Filler, Rotary Capper, Rotary Labeler and Packaging Tables.



Our pledge—"More output with less labor"—holds true equally with U. S. washing and drying units. This photograph shows an installation of U. S. "Cascade" Washers, together with U. S. Drying and conveying equipment used in a prominent food product plant.

EXPERIENCED RECOMMENDATIONS

Distillers, manufacturers of fine chemicals, drugs and pharmaceuticals, food products, cosmetics, etc., have called upon U. S. Engineers, first for careful recommendations to fit the job and, second, for dependable bottling and packaging machinery to be installed.

Write us for complete catalog and engineering advice based on experience. If you wish to personally visit U. S. engineered plants, we'll be glad to tell you where they are located and arrange a visit.

WHITECAPS

The Lever-Opening, Re-Sealing Metal Closures



THE PERFECT SEAL

WHITECAPS provide maximum security for your products, yet are the simplest of all closures to open. The foremost food packers, more and more recognize both the production and *sales advantages* of having their products capped with WHITE-CAPS.



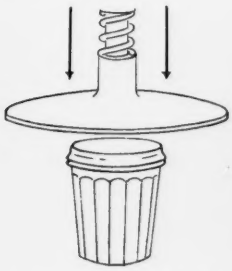
This Gasket Does It

The gasket forms a seal on the side wall of the container all the way to the top. A perfect seal is assured. No other type of closure gives the consumer these two exclusive advantages—*quick lift, and re-seal.*

ONSUMERS APPRECIATE WHITECAP ADVANTAGES



EASY TO OPEN



NO BREAKAGE

The WHITECAP is pressed on, not *crimped on;* and allows for variations in height and out-of-round condition of glassware or container.



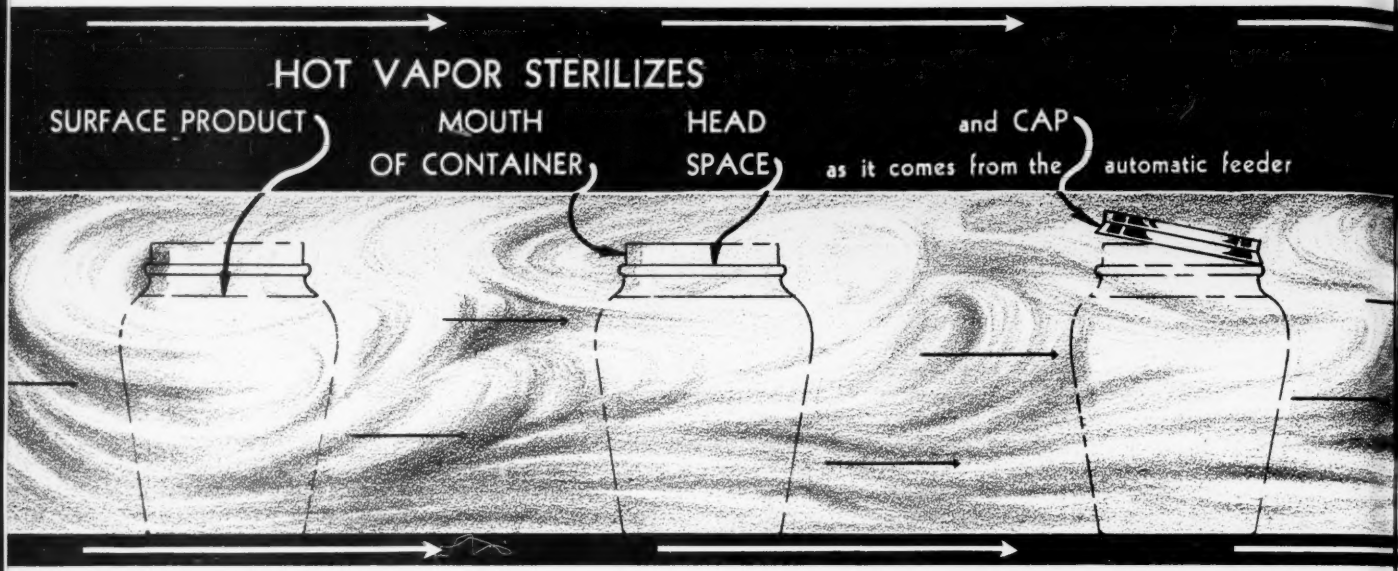
EASY TO RESEAL

VAPOR-SEALING

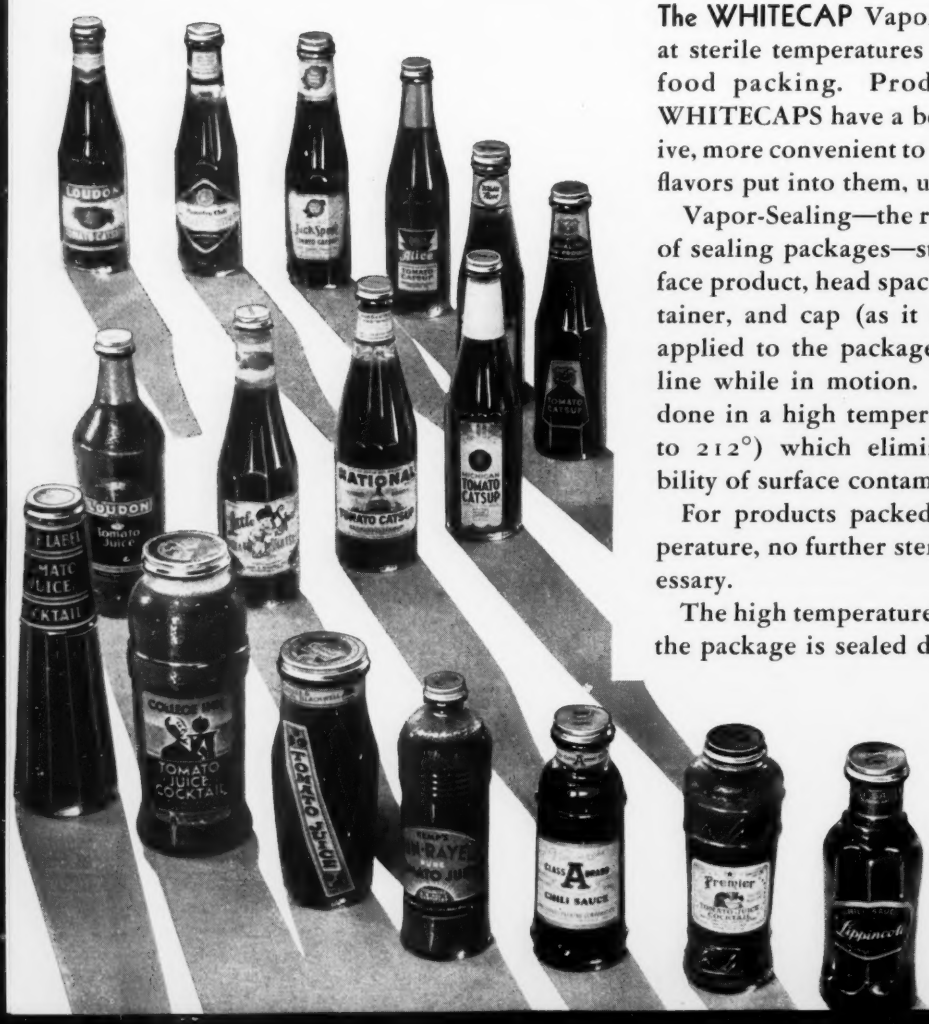
The Only Process of Sterile-Sealing

The WHITECAP High Speed

For All Products Packed at Sterile Temperatures . . . Prevents Surf



The above diagram shows jars passing through hot vapor chamber directly from the filling machine. The temperature of the chamber can be regulated up to 212°. Here the surface of the



The WHITECAP Vapor-Sealing Process for products packed at sterile temperatures is the most advanced development in food packing. Products which are vapor-sealed under WHITECAPS have a better, brighter color—are more attractive, more convenient to use, and retain all of the fresh, delicious flavors put into them, until they are completely used.

Vapor-Sealing—the revolutionary new WHITECAP process of sealing packages—sterilizes the surface product, head space, mouth of container, and cap (as it is automatically applied to the package), in a straight line while in motion. The sealing is done in a high temperature vapor (up to 212°) which eliminates all possibility of surface contamination.

For products packed at sterile temperature, no further sterilization is necessary.

The high temperature vapor in which the package is sealed delivers the con-



WHITE VAPOR SEALING M

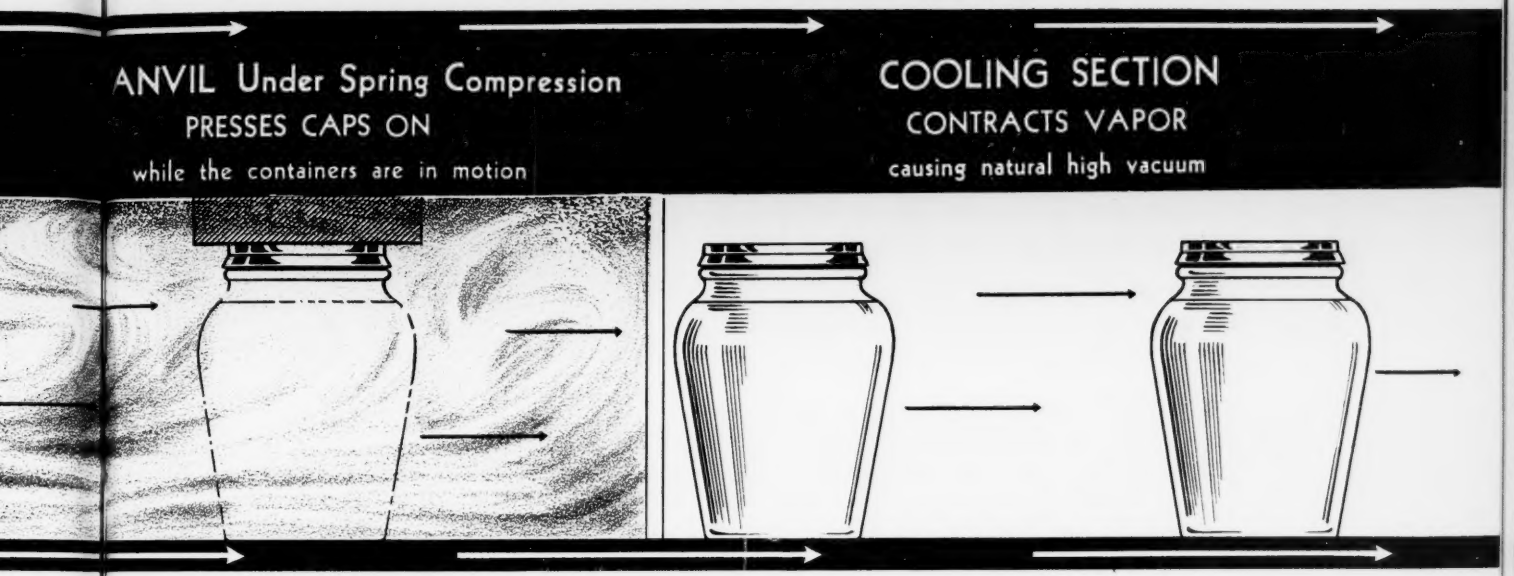
WHITE

WHITE CAP COMPANY · CHICO

XUM

VAPOR-SEALING Process

Prevents Surface Contamination Between Filling and Capping Operations

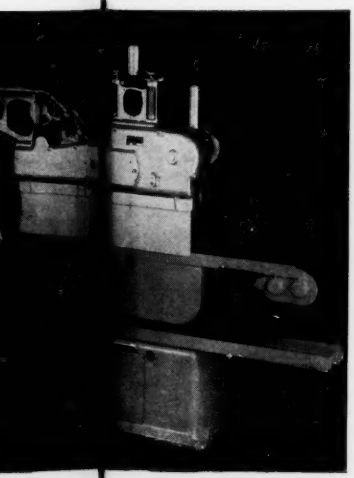


product, the mouth of the container, the head space and the cap are sterilized and instantly sealed. Passing to the cooling section, the vapor contracts and causes a natural high vacuum.

tainer with the highest possible vacuum. This further protects the product against oxidation, "black-neck," and contamination.

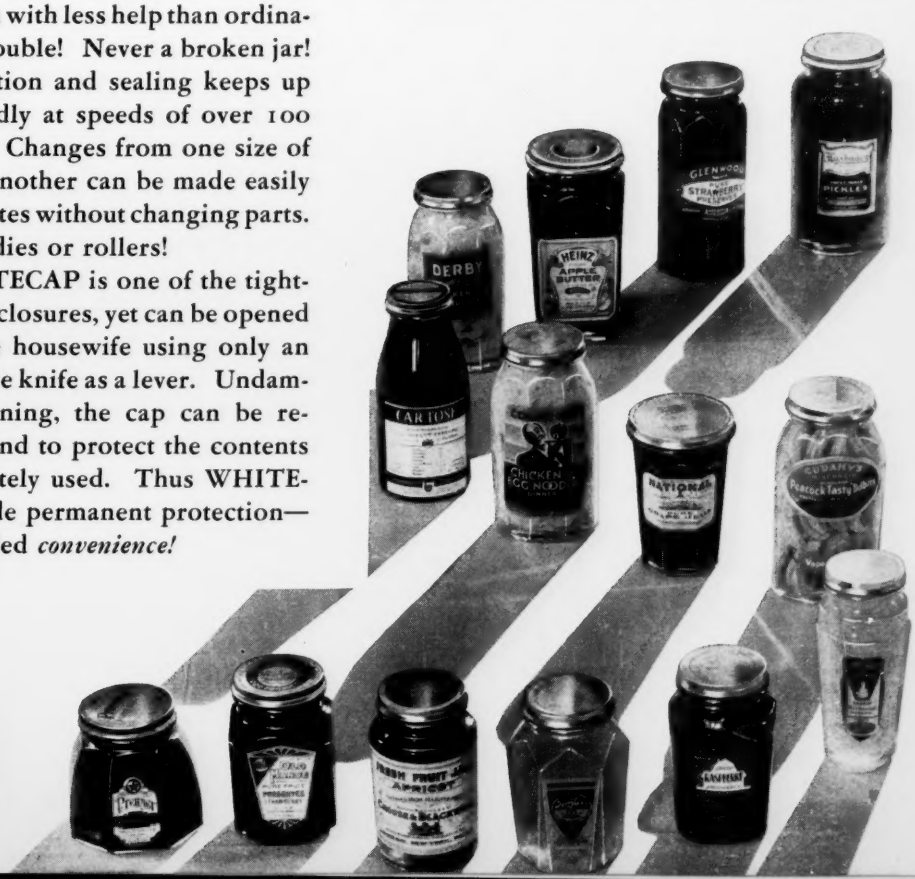
Because Vapor-Sealing is high speed sealing—it can take care of greatly increased production with less help than ordinary capping methods. No fuss or trouble! Never a broken jar! Without interruption, the sterilization and sealing keeps up uninterruptedly at speeds of over 100 per minute. Changes from one size of package to another can be made easily in a few minutes without changing parts. No chucks, dies or rollers!

The WHITECAP is one of the tightest gripping closures, yet can be opened easily by the housewife using only an ordinary table knife as a lever. Undamaged in opening, the cap can be replaced by hand to protect the contents until completely used. Thus WHITECAPS provide permanent protection—and unequalled *convenience!*



E VAPOR SEING MACHINE

WHITECAP *service begins with a survey of the plant layout so as to bring about the simplest and most convenient routing of the product.* WHITECAP *engineers supervise the installation and initial pack. They instruct your operators in the use and care of the machines. They are on call for any emergency at any time. In addition, they make regular calls at the packing plant to check up on all conditions relative to the packaging and sealing of the product.*



T CAPS

· CHICO · NEW YORK · LONDON

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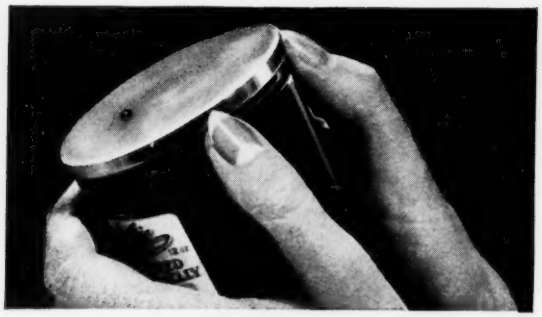
"TOP SEAL" WHITECAPS

For Thin Blown Glass Tumblers



"TOP SEAL" WHITECAPS, a new and exclusive development for the sealing of the popular thin blown tumblers. This new type package used in connection with "TOP SEAL" WHITECAPS can now be sealed as rapidly as "WHITECAPS" with almost entire elimination of breakage.

"WHITECAP" sealing machines are so constructed that they give a uniform pressure, taking up wavy and irregular top surfaces of the glass and making perfect contact and security of seal.



Products in thin blown tumblers topped off by "TOP SEAL" WHITECAPS possess continued sales appeal. To open, merely puncture the cap and lift off.

WHITE CAP COMPANY···CHICAGO···NEW YORK···LONDON, ENGLAND

VAPOR-SEALING

The Only Process of Sterile-Sealing

XUM

Consult us

REGARDING YOUR ADHESIVE PROBLEMS



Modern Industry Demands the Precision That Comes from Scientific Testing

Tested UPACO Adhesives Insure Dependable Results

THERE can be no halfway measures with package-sealing. It must be done right, or it is of no value.

We can assist you with this important phase of your packaging work, and show you how to secure perfect results, economically, at high production speed. It is largely a matter of using the correct formula.

A Special Formula Available for Every Packaging Problem

We have special tried-and-proven formulas for every form of package sealing or bonding. For example, we have perfected more than 400 formulas to meet the problems of sealing moisture-proof transparent cellulose under varying conditions.

If you have a particularly difficult problem—on any specialized job, let us assist you. An up-to-date laboratory and skilled chemists are at your service.

Send us a few samples of the material on which the adhesive is applied; also information as to whether it is done by machine or hand work.

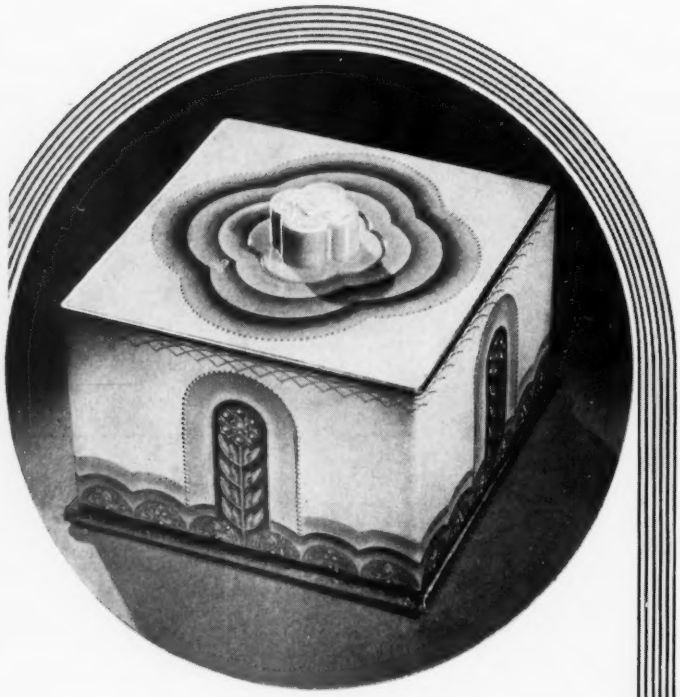
UNION PASTE CO.

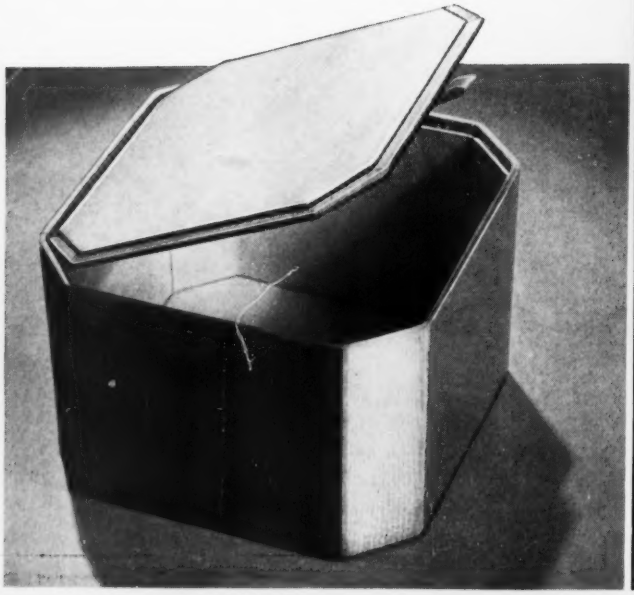
MANUFACTURERS OF

UPACO ADHESIVES

200 Boston Avenue — Medford, Mass.

Craftsmanship ★ ★ ★

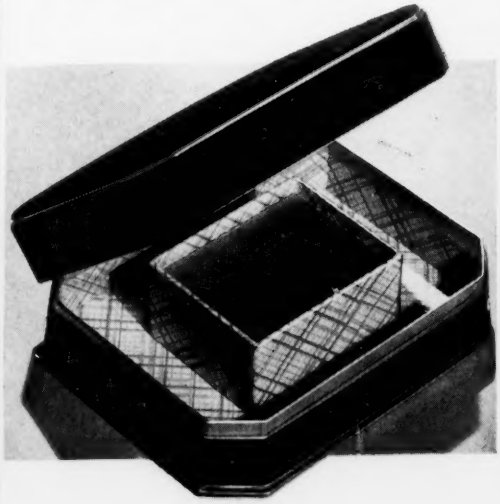




BOXES by Ferdinand Buedingen are distinguished not only for their freshly original and distinctive designs, but for their superior craftsmanship . . . . the great care with which they are constructed and finished in all those details that make for effective packaging.

This applies to the machine-made, as well as the hand-made boxes produced by us.

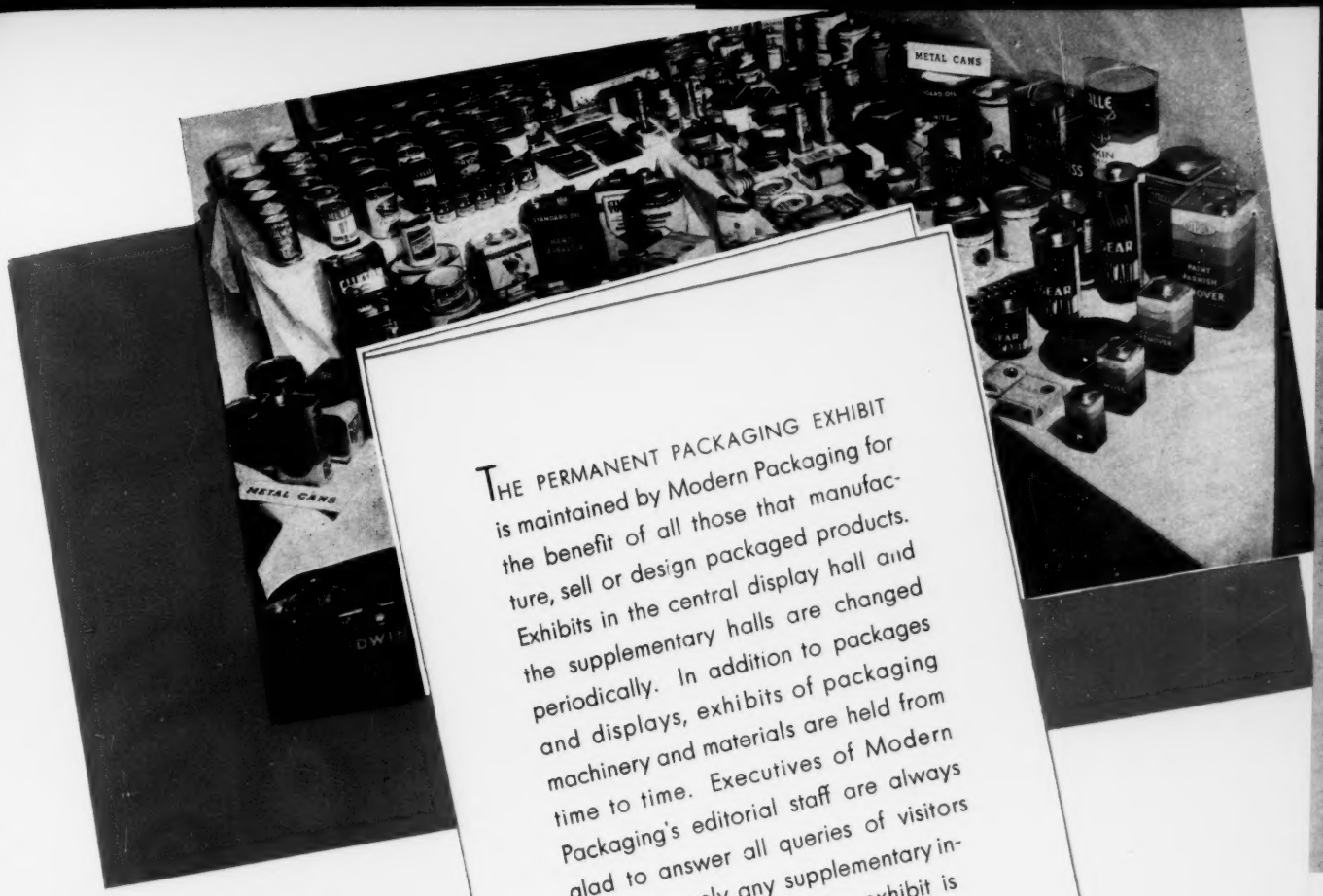
We have some attractive packaging ideas to offer manufacturers of stationery, pen-and-pencil sets, candy, jewelry and toilet goods. A discussion of your requirements with one of our representatives will not obligate you in the least.



FERDINAND BUEDINGEN COMPANY

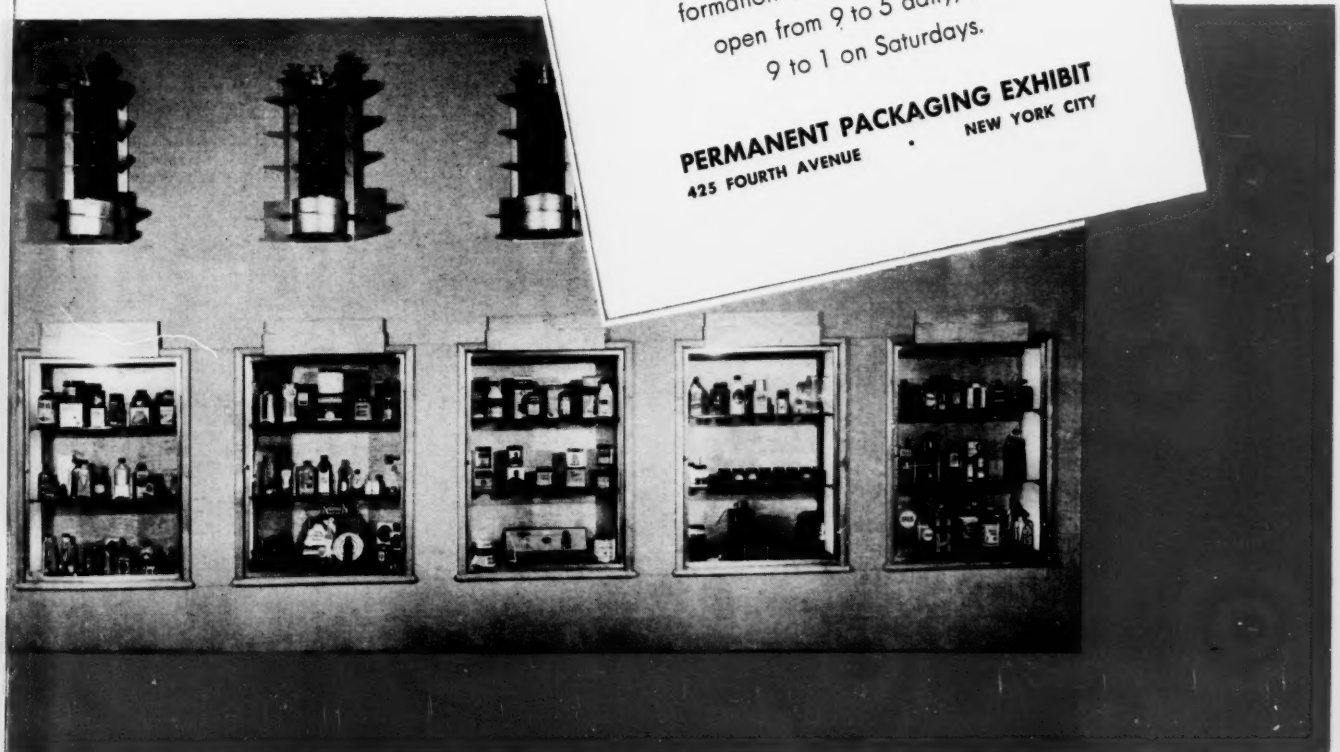
INCORPORATED

ROCHESTER ★ ★ ★ N. Y.



THE PERMANENT PACKAGING EXHIBIT is maintained by Modern Packaging for the benefit of all those that manufacture, sell or design packaged products. Exhibits in the central display hall and the supplementary halls are changed periodically. In addition to packages and displays, exhibits of packaging machinery and materials are held from time to time. Executives of Modern Packaging's editorial staff are always glad to answer all queries of visitors and to supply any supplementary information desired. The exhibit is open from 9 to 5 daily, from 9 to 1 on Saturdays.

PERMANENT PACKAGING EXHIBIT
425 FOURTH AVENUE • NEW YORK CITY



PERMANENT PACKAGING EXHIBIT

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PERMANENT PACKAGING EXHIBIT

XUM









THE Reputation of Karl Voss...

this country's finest maker of high quality hand made boxes, is built upon years of designing and manufacturing experience. Voss boxes maintain the character and enhance the beauty of most of the really fine products upon the market today. Illustrated on this page are four Voss-made boxes, differing widely from each other but all containing that same element, of correct design perfectly executed, which typifies every product of the Voss plant. Write to the Karl Voss Corporation for samples of Voss boxes and for an analysis of the package possibilities of your own product.

KARL VOSS CORPORATION

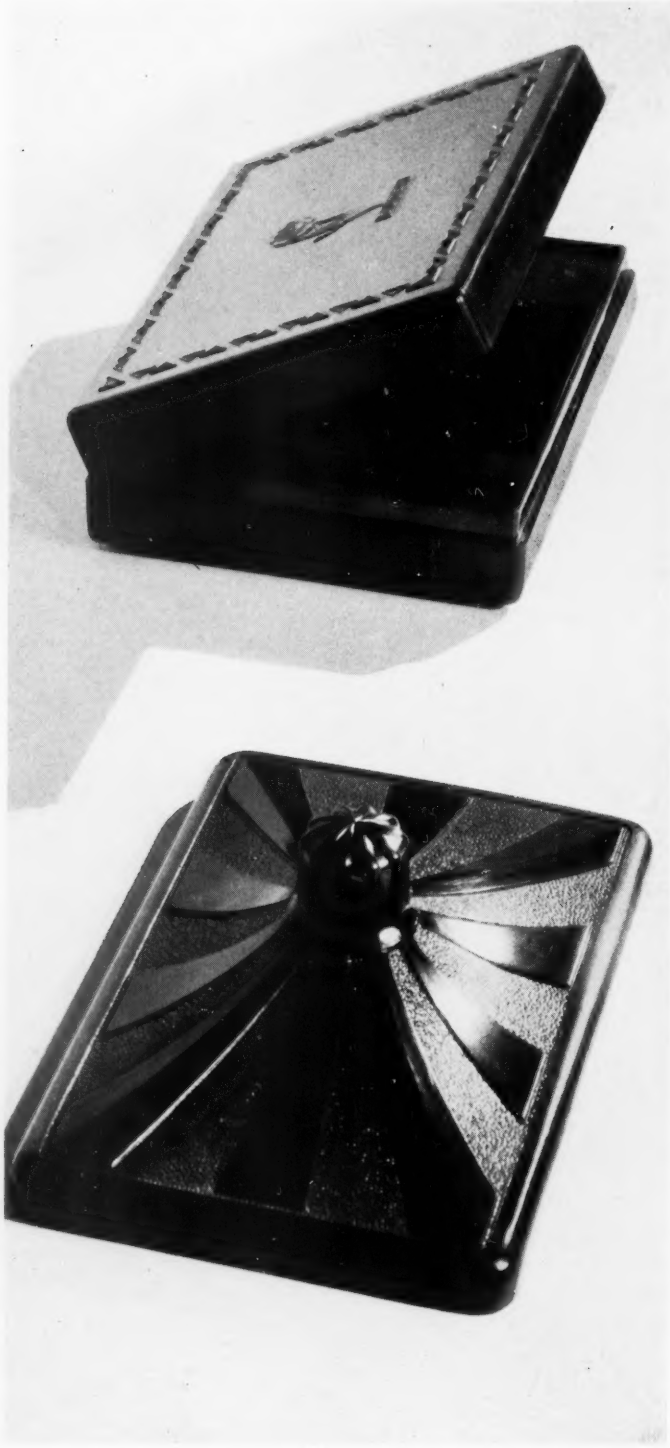
Division of Shoup-Owens, Inc.

HOBOKEN NEW JERSEY

KVC

MOLDED CONTAINERS

add immeasurably to the appeal of products



HUNDREDS of progressive manufacturers have been quick to recognize that containers, display stands, caps, ornaments and kindred items add immeasurably to the appeal of their products and are profiting by the added allure that is obtainable through this medium.

Forty-five years' experience in the molding of plastics enables us to assure you of exceptionally satisfactory service in every respect.

Competent designers are ready at all times to assist you in creating new containers, closures or other molded devices.

Aside from this our Metal Fabricating Division allows us to adequately handle items where both metal and molded parts are required. Put it up to us, for we have been unusually successful in this type of work.

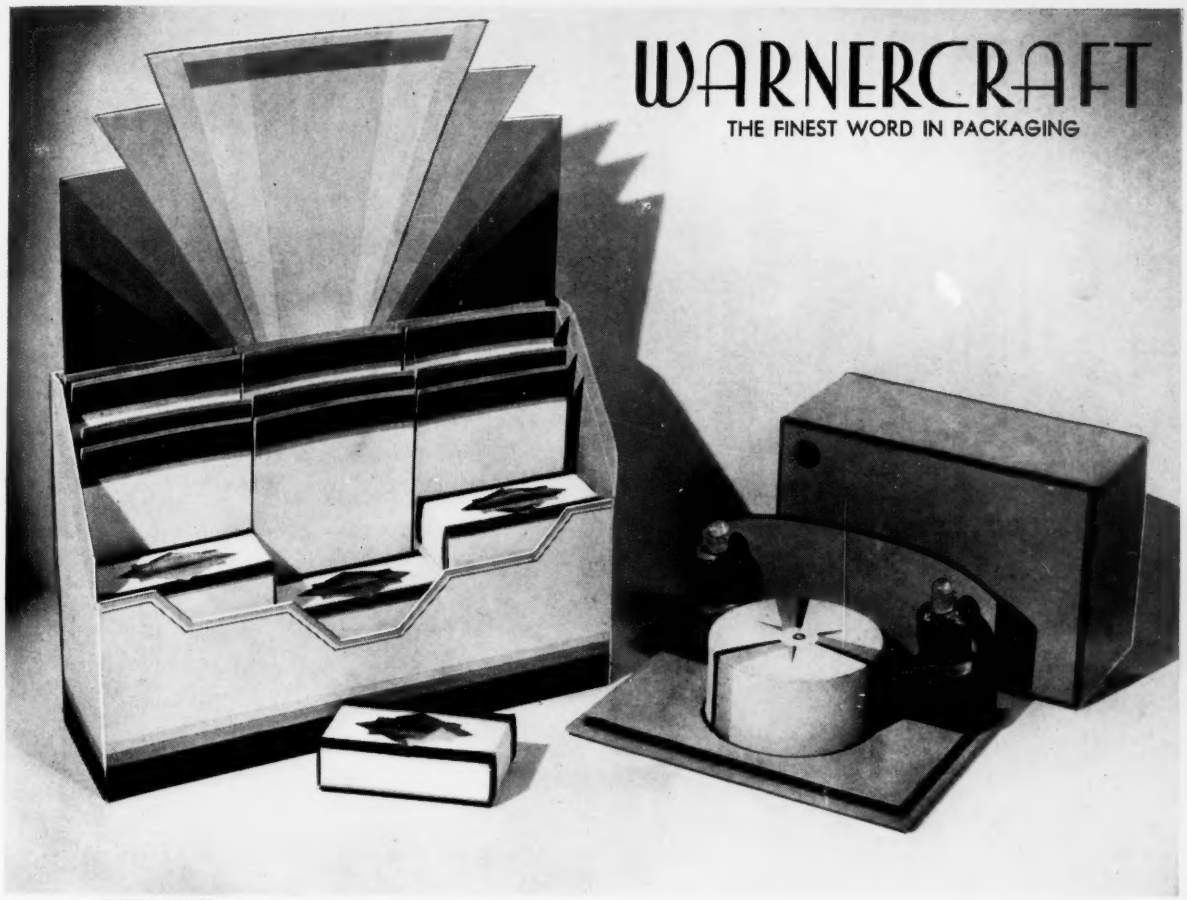
WATERBURY BUTTON COMPANY

MOLDING DIVISION

Established 1812

Waterbury Conn.

XUM



FANCY PAPER BOXES
HAND MADE
AND
MACHINE MADE

•

FOLDING BOXES

•

ARTISTS AND
DESIGNERS ALWAYS
AT YOUR SERVICE

We Run the Gamut

Whatever your requirements may be for either folding or set up boxes Warner Brothers have met or improved on your specifications. This manufacturing knowledge, coupled with a large and efficient print shop, has allowed us to render forty years conscientious service to the box using industries.

Now, more so than ever, our package designing and engineering departments are satisfying a rapidly growing and diversified clientele. Warner Boxes speak for themselves giving voice to their cut, fit, wrapping and designing easily understandable to those who look and listen, detailing a thorough knowledge of box construction and finishing, acquired over a span of years.

May we acquaint you with the unusual cooperation now enjoyed by many of the leading package users?

THE WARNER BROTHERS CO.

BRIDGEPORT CONN.

New York Office: 200 Madison Ave.



TUBES

Wheeling Collapsible Tubes are made by masters of the tube-maker's art. Wheeling Tubes have strength, durability and beauty because they are well made from the finest materials and beautifully decorated by artists skilled in tube design.

Every Wheeling Tube is carefully inspected several times during its manufacture and it is rare indeed that one below perfection reaches the shipping carton. Send your product to the consumer in Wheeling Tubes and know that "tube failure" has been reduced to a minimum.

CAPS

Wheeling manufactures plastic caps for tubes and bottles. These caps are made to Wheeling's high standards of quality and are carefully inspected to insure perfection in form and strength. Wheeling caps will add immeasurably to the attractiveness of your package and by so doing will increase your sales.



WHEELING

WHEELING STAMPING COMPANY
Wheeling, W. Va.

Factory: Wheeling, W. Va.
B. E. Stover, Sales Mgr.

Eastern Rep., Geo. K. Diller
90 W. Broadway, New York

XUM



WHEN your packaging problem is presented to us it is our aim to give you an unusual and expensive looking box at a moderate price.

We feel we can accomplish this because of our many years of experience in both automatically made and high grade hand made boxes. Equipped as we are to handle both types of work we should be able to assist you with your packaging problems successfully.

Advertising must be backed up by an organization that produces results from the origin of the package to the ultimate satisfaction of the consumer. We feel particularly qualified to offer this service.

Your inquiry will receive our immediate attention.

NRA MEMBER U.S. WE DO OUR PART

WATERBURY PAPER BOX CO.

New York Office	New England Representative	Chicago Office	San Francisco, Cal.
F. L. BUTZ	ROBERT CROTTY	CHAS. A. RINDELL	CHAS. H. CURRY
100 E. 42nd St.	Waterbury, Conn.	64 W. Randolph St.	420 Market St.



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